# Service Manual

PIONEER®
*The Art of Entertainment*

ORDER NO.
**RRV1833**

FILE-TYPE CD PLAYER

# PD-F1006

## ● Refer to the service manual RRV1723 for PD-F906/KU.

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | The voltage can be converted by the following method. |
|---|---|---|---|
| | PD-F1006 | | |
| KU/CA | O | AC120V | ——— |
| RD | O | AC110 – 127V/220 – 240V | With the voltage selector |

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# 1. CONTRAST OF MISCELLANEOUS PARTS

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Ref. No. : Numbers following P and hyphen (-) indicate the page(s) and location number(s) in the RRV1723 service manual, respectively.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

| | | | | |
|---|---|---|---|---|
| *560Ω* | → | *56 × 10¹* | → | *561* ..... *RD1/4PU[5][6][1]J* |
| *47kΩ* | → | *47 × 10³* | → | *473* ..... *RD1/4PU[4][7][3]J* |
| *0.5Ω* | → | *R50* | | ..... *RN2H[R][5][0]K* |
| *1Ω* | → | *1R0* | | ..... *RS1P[1][R][0]K* |

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

| | | | | |
|---|---|---|---|---|
| *5.62kΩ* | → | *562 × 10¹* | → | *5621* ..... *RN1/4PC[5][6][2][1]F* |

## ■ CONTRAST TABLE

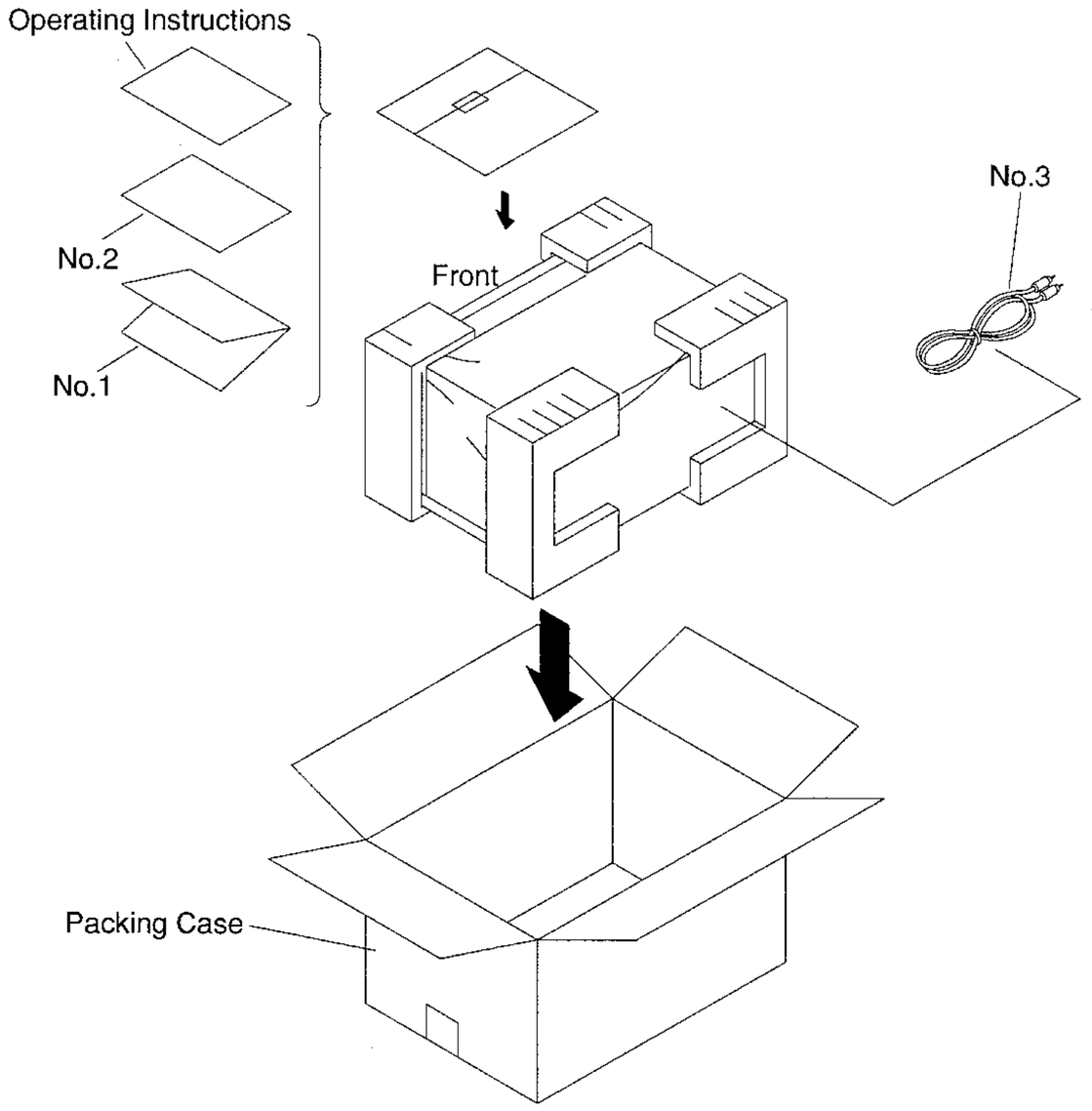
PD-F1006/KU/CA, RD and PD-F906/KU are constructed the same except for the following:

| Ref.No. | Mark | Symbol and Description | Part No. | | | Remarks |
|---|---|---|---|---|---|---|
| | | | PD-F906/KU | PD-F1006/KU/CA | PD-F1006/RD | |
| | | PACKING | | | | |
| P3–3 | | Remote Control Unit | PWW1108 | PWW1110 | PWW1110 | |
| P3–5 | NSP | Warranty Card | ARY1044 | ARY1044 | Not used | |
| P3–6 | | Operating Instructions (Spanish/Chinese) | Note used | Not used | PRD1022 | |
| P3–6 | | Operating Instructions (English) | PRB1253 | PRB1258 | PRB1258 | |
| P3–7 | NSP | Battery(R6P.AA) | VEM – 013 | Not used | Not used | |
| P3–7 | NSP | Battery(LR6) | Not used | AEX1007 | AEX1007 | |
| P3–11 | | Packing Case | PHG2226 | PHG2270 | PHG2270 | |
| | | Jacket File | Not used | PHN1049 | PHN1049 | ✻1. No.1 |
| | | Index Label 100 | Not used | PRW1406 | PRW1406 | ✻1. No.2 |
| | | Video Cable | Not used | VDE1034 | VDE1034 | ✻1. No.3 |
| | | EXTERIOR | | | | |
| | NSP | MOTHER BOARD ASSY | PWM2119 | PWM2127 | PWM2128 | |
| P6–1 | ⚠ | ├MAIN BOARD ASSY | PWZ3400 | PWZ3408 | PWZ3409 | |
| P6–2 | ⚠ | ├POWER BOARD ASSY | PWZ3414 | PWZ3420 | PWZ3421 | |
| P6–3 | | ├DISPLAY BOARD ASSY | PWZ3426 | PWZ3429 | PWZ3429 | |
| P6–4 | NSP | ├SWITCH BOARD ASSY | PWZ3432 | PWZ3435 | PWZ3435 | |
| | NSP | ├HEADPHONE BOARD ASSY | Not used | PWZ3447 | PWZ3448 | ✻1. No.4 and ✻2 |
| P6–5 | NSP | ├DOOR BOARD ASSY | PWZ3441 | PWZ3449 | PWZ3449 | |
| P6–6 | NSP | └CENTER LED BOARD ASSY | PWZ3443 | PWZ3451 | PWZ3451 | |
| | NSP | GUI BOARD ASSY | Not used | PWX1498 | PWX1499 | |
| | | ├μ COM BOARD ASSY | Not used | PWZ3485 | PWZ3486 | ✻1. No.5 |
| | | └KEY BOARD ASSY | Not used | PWZ3492 | PWZ3493 | ✻1. No.6 and ✻3 |
| P6–10 | ⚠ | Cord Stopper | CM – 22C | CM – 22C | CM – 22B | |
| P6–11 | | 32P F.F.C/30V | PDD1167 | Not used | Not used | |
| P6–11 | | 38P F.F.C/30V | Not used | PDD1169 | PDD1169 | |
| P6–12 | ⚠ | AC Power Cord | PDG1015 | PDG1015 | PDG1056 | |
| P6–13 | | Rubber Sheet | AEB1111 | Not used | Not used | |
| P6–14 | | Foot Assy | AEC1531 | Not used | Not used | |
| P6–18 | | Rear Base | PNA2317 | PNA2372 | PNA2379 | |
| P6–46 | | Name Plate | PAM1704 | VAM1032 | VAM1032 | |
| P6–47 | | Display Window | PAM1725 | PAM1728 | PAM1728 | |
| P6–50 | | Operation Panel | PNW2742 | PNW2740 | PNW2740 | |
| P6–55 | | 65 Label | ORW1069 | ORW1069 | Not used | |
| | | Insulator | Not used | PNW1912 | PNW1912 | ✻1. No.7 |
| | | LED Lens | Not used | PNW2019 | PNW2019 | ✻1. No.8 |
| | | Knob | Not used | PAC1707 | PAC1707 | ✻1. No.9 |
| | NSP | SR Angle | Not used | PNB1192 | PNB1192 | ✻1. No.10 |
| | | Ferrite Core | Not used | PTH1021 | PTH1021 | ✻1. No.11 |

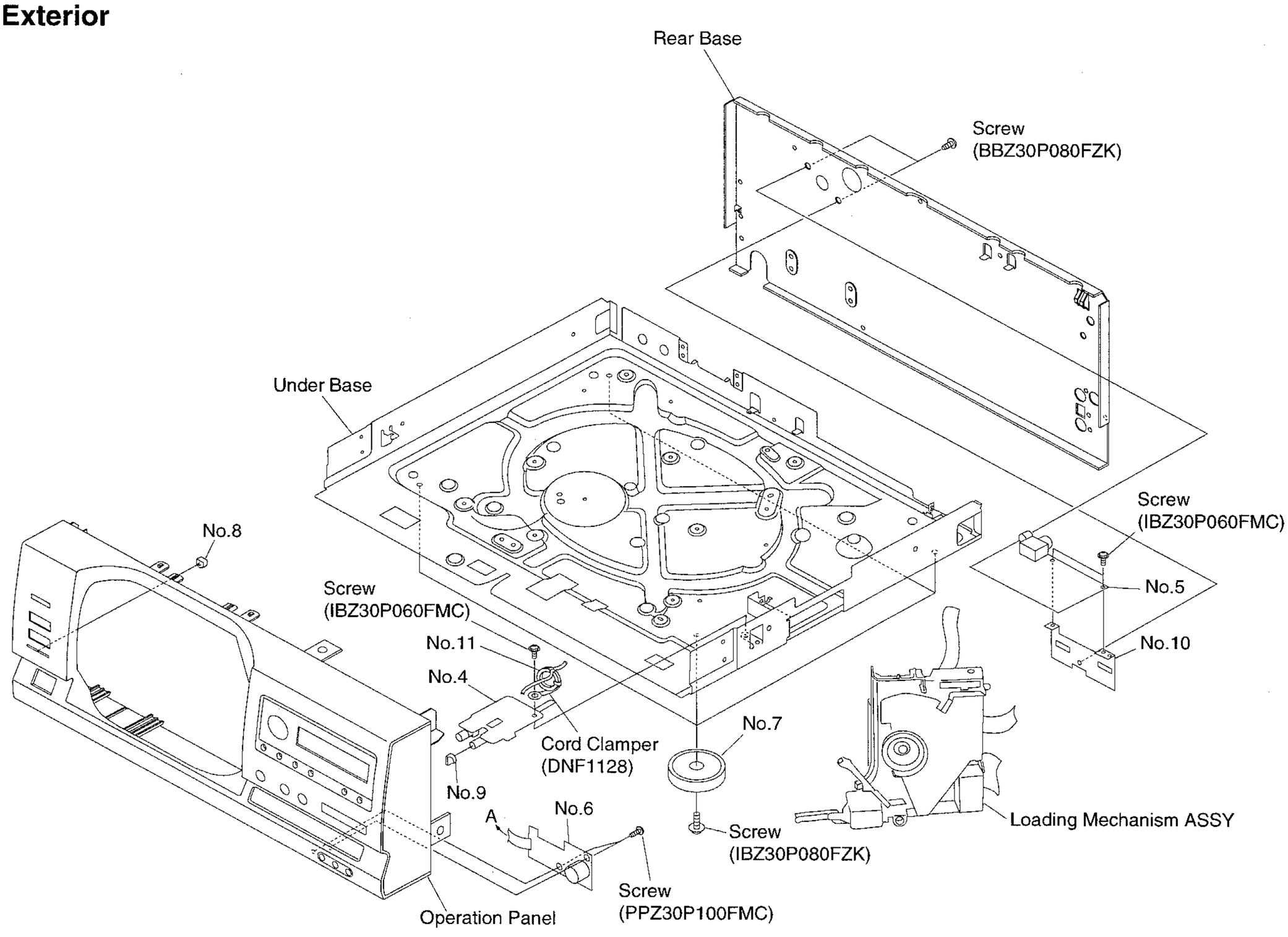
Note ✻1 : The numbers in the remarks column correspond to the numbers on the exploded diagram. Refer to "EXPLODED VIEWS".
Note ✻2 : Although PWZ3447 and PWZ3448 are differentin part number, they consist of the same compouents.
Note ✻3 : Although PWZ3492 and PWZ3493 are differentin part number, they consist of the same compouents.

## ■ EXPLODED VIEWS

### ● Packing




### ● Exterior



## ■ CONTRAST OF PCB ASSEMBLIES

### MAIN BOARD ASSY

PWZ3409 and PWZ3408 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | PWZ3408 | PWZ3409 | |
| | D1301 – D1309, D1312 – D1314 | 1SS254 | Not used | |
| | R1301 – R1305, R1307 | RD1/4PU471J | Not used | |
| | R1310 – R1312 | RD1/4PU103J | Not used | |
| | JA394 (INTERFACE JACK) | DKN1035 | Not used | |

### POWER BOARD ASSY

PWZ3421 and PWZ3420 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | PWZ3420 | PWZ3421 | |
| ⚠ | IC31 | Not used | ICP – N10 | |
| ⚠ | Power Transformer (AC120V) | PTT1318 | Not used | |
| ⚠ | Power Transformer (AC110 – 127V/220 – 240V) | Not used | PTT1320 | |
| ⚠ | S5 Voltage Selector (AC110 – 127V/220 – 240V) | Not used | PSB1006 | |

### μ COM BOARD ASSY

PWZ3486 and PWZ3485 are constructed the same except for the following:

| Mark | Symbol and Description | Part No. | | Remarks |
|---|---|---|---|---|
| | | PWZ3485 | PWZ3486 | |
| | S901 | Not used | RSH1039 | |

## ■ PCB PART'S LIST (KU/CA TYPE)

Mark No. Description Parts No.

### DF SELECT MOTOR BOARD ASSY

SELECT MOTOR BOARD assembly has no service part.

### BF SENSOR BOARD ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| | Q601, Q602 | DTC124ES |
| | D601, D602 | GP1S53V |

**RESISTORS**

| | | |
|---|---|---|
| | All Resistors | RD1/4PU□□□J |

### HF MAIN BOARD ASSY

**SEMICONDUCTORS**

| | | |
|---|---|---|
| | IC406 | BA15218 |
| | IC151 | CXA1782CQ |
| | IC301 | CXD2529Q |
| ⚠ | IC203 | LA6517 |
| ⚠ | IC201, IC202 | LA6520 |
| | IC302 | LC89170M |
| | IC405 | NJM4558DX |
| ⚠ | IC71 | NJM79M05FA |
| | IC401 | PD2026B |
| | IC351 | PD4837A |
| | Q151 | 2SA854S |
| | Q381, Q391 | 2SC1740S |
| | Q403, Q404 | 2SD2144S |
| | Q152 | DTA124ES |
| | Q321, Q322, Q405 | DTC124ES |
| | D1301 – D1309, D1312 – D1314, D218 | 1SS254 |
| | D391 – D397 | 1SS254 |

**COILS AND FILTERS**

| | | |
|---|---|---|
| | L351 | LAU100J |
| | L391, L395, L396 | LAU1R0J |

**CAPACITORS**

| | | |
|---|---|---|
| | C181 | CCCCH100D50 |
| | C403 | CCCCH120J50 |
| | C404 | CCCCH220J50 |
| | C353, C392, C397 | CCCSL101J50 |
| | C315 | CCCSL221J50 |
| | C429, C430, C435–C438 | CCCSL390J50 |
| | C171, C175, C301, C302 | CEAS101M10 |
| | C311 – C314, C316, C322, C380 | CEAS101M10 |
| | C73 | CEAS101M10 |
| | C433, C434 | CEAS220M25 |
| | C131 – C133, C211, C212 | CEAS330M16 |
| | C431, C432 | CEAS330M16 |
| | C351, C401, C74 | CEAS471M6R3 |
| | C169, C170, C356 | CEAS4R7M50 |
| | C309 | CEASR47M50 |
| | C1309, C153 – C155, C158, C230 | CFTXA104J50 |
| | C250, C321, C354, C355, C364 | CFTXA104J50 |
| | C381, C398, C413 – C416 | CFTXA104J50 |
| | C157 | CFTXA823J50 |
| | C156, C161, C164, C168, C218 | CGCYX103K25 |
| | C160 | CGCYX333K25 |
| | C152, C307 | CGCYX473K25 |
| | C163 | CKCYB102K50 |
| | C176, C306, C441, C442 | CKCYB152K50 |
| | C305 | CKCYB222K50 |
| | C162 | CKCYB332K50 |
| | C167 | CKCYB472K50 |
| | C151 | CKCYB682K50 |
| | C1308, C159, C172, C185, C205 | CKCYF103Z50 |
| | C210, C215, C219, C304, C318 | CKCYF103Z50 |
| | C323, C358, C359, C362, C366 | CKCYF103Z50 |
| | C387, C461, C81 | CKCYF103Z50 |

**RESISTORS**

| | | |
|---|---|---|
| | VR153, VR155 (10kΩ/0.1W) | RCP1045 |
| | VR151, VR152, VR154 (22kΩ/0.1W) | RCP1046 |
| | VR156 (220kΩ/0.1W) | RCP1049 |
| | Other Resistors | RD1/4PU□□□J |

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| **OTHERS** | | | |
| | CN207 | MT 4P CONNECTOR | 173981 – 4 |
| | CN208, CN401 | 3P JUMPER CONNECTOR | 52147 – 0310 |
| | CN205 | 4P JUMPER CONNECTOR | 52147 – 0410 |
| | CN203 | 5P JUMPER CONNECTOR | 52147 – 0510 |
| | CN204 | 7P JUMPER CONNECTOR | 52147 – 0710 |
| | CN352 | 9P JUMPER CONNECTOR | 52147 – 0910 |
| | CN11 | 12PJUMPER CONNECTOR | 52147 – 1210 |
| | JA394 | | DKN1035 |
| | JA321 | OPTICAL LINK OUT | GP1F32T |
| | CN351 | CONNECTOR | HLEM38S – 1 |
| | JA401 | JACK | PKB1032 |
| | JA393 | JACK | PKN1005 |
| | X401 | XTAL RES (OSC)(16.934MHz) | PSS1008 |
| | JA391, JA392 | JACK | RKN1004 |
| | CN201 | CONNECTOR 6P | RKP – 533 |
| | CN202 | CONNECTOR | SLW16S – 1C7 |
| | | SCREW PLATE | VNE1948 |
| | X351 | CERAMIC RESONATOR (4.19MHz) | VSS1028 |

## KF POWER BOARD ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| ⚠ | IC23 | | PQ05RA1 |
| ⚠ | IC21 | | PQ05RR12 |
| | D54 | | MTZJ18B |
| ⚠ | D11 – D14, D41, D42, D52 | | S5688G |
| **CAPACITORS** | | | |
| | C27, C42 | | CEAS101M10 |
| | C52 | | CEAS101M35 |
| | C26 | | CEAS222M16 |
| | C11, C13, C15, C16 | | CKCYF103Z50 |
| | C25, C41 | (6800μF/16V) | VCH1060 |
| **RESISTORS** | | | |
| | | All Resistors | RD1/4PU□□□J |
| **OTHERS** | | | |
| ⚠ | | POWER TRANSFOMER | PTT1318 |
| ⚠ | | TERMINAL | RKC – 061 |

## IF DISPLAY BOARD ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | Q711 | | 2SC1740S |
| | D701 – D705 | | 1SS254 |
| | D711, D712 | | MAY5063X |
| **SWITCHES AND RELAYS** | | | |
| | S703, S704, S707 – S720 | | PSG1006 |
| **RESISTORS** | | | |
| | | All Resistors | RD1/4PU□□□J |
| **OTHERS** | | | |
| | CN701 | CONNECTOR | HLEM38R – 1 |
| | V701 | FL INDICATOR TUBE | PEL1089 |

## JF SWITCH BOARD ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | D751 | | PCX1019 |
| **SWITCHES AND RELAYS** | | | |
| | S751 – S753 | | PSG1006 |
| **CAPACITORS** | | | |
| | C752 | | CKCYF103Z50 |
| **RESISTORS** | | | |
| | | All Resistors | RD1/4PU□□□J |
| **OTHERS** | | | |
| | | REMOTE RECEIVER UNIT | GP1U27X |

## LF HEADPHONE BOARD ASSY

| | | | |
|---|---|---|---|
| **COILS AND FILTERS** | | | |
| ⚠ | L501, L504, L505 | | LAU1R0J |
| **CAPACITORS** | | | |
| ⚠ | C501, C502 | | CKCYF223Z50 |
| ⚠ | C503, C504 | | CKCYF473Z50 |
| **RESISTORS** | | | |
| | VR501 | (0.5kΩ·B) | PCS1003 |
| **OTHERS** | | | |
| | JA501 | JACK | RKN1002 |
| | KN501 | EARTH METAL FITTING | VNF1084 |

## GF DOOR BOARD ASSY

| | | | |
|---|---|---|---|
| **OTHERS** | | | |
| | | REAF SWITCH | VSK1011 |

## FF CENTER LED BOARD ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | D1601 – D1603 | | SLR – 342YCT31 |
| **RESISTORS** | | | |
| | | All Resistors | RD1/4PU□□□J |

## MF μCOM BOARD ASSY

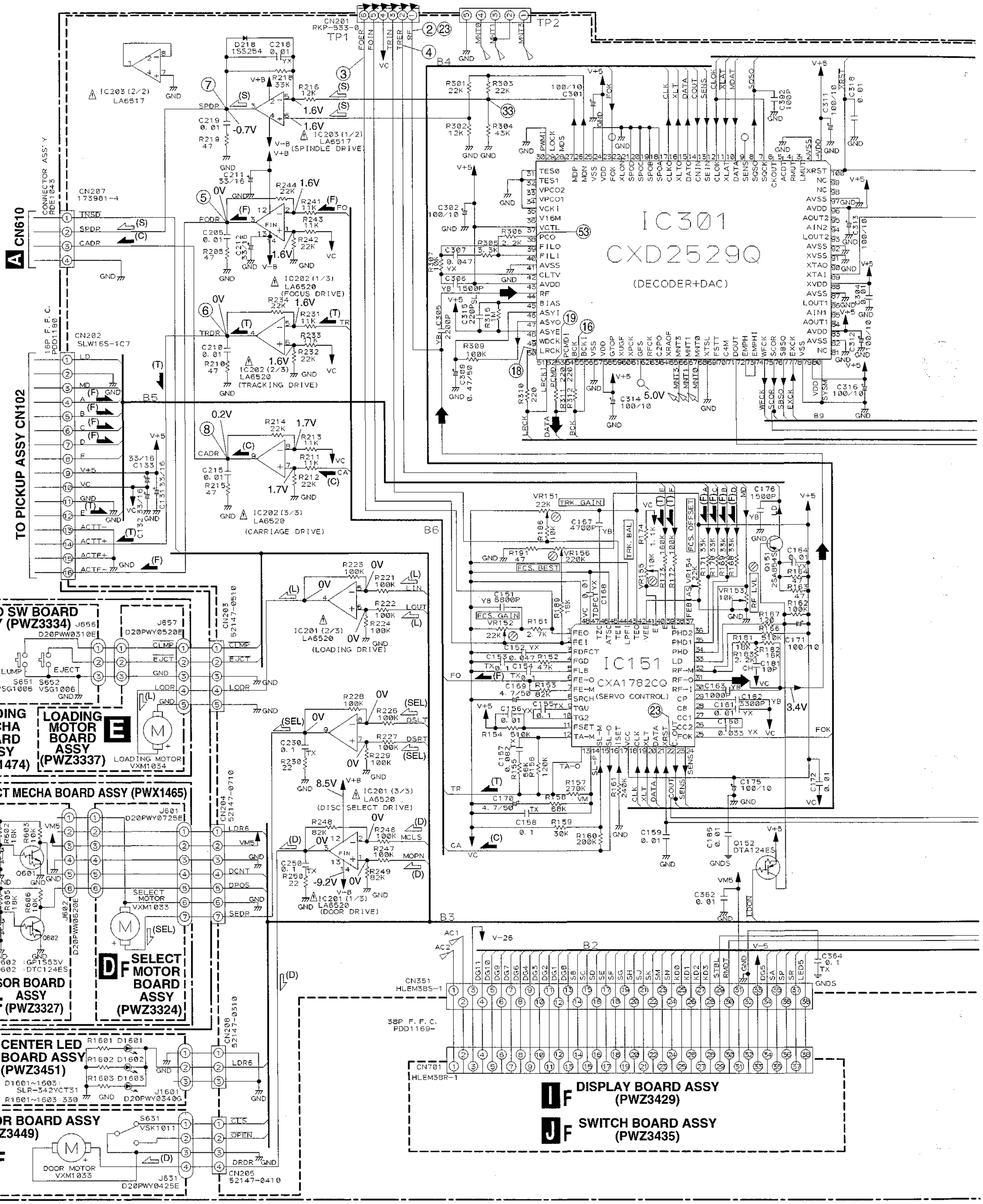
| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | IC902 | | LH5168N – 10L |
| | IC904 | | MM1031XS |
| | IC901 | | PD4838A |
| | IC903 | | PD6222A |
| | Q901 | | 2SC1740S |
| | D901 | | 1SS133X |
| **COILS AND FILTERS** | | | |
| | L901 | | LFA100K |
| | L911 | | LFA220J |
| | L902, L913 | | RTF1167 |
| **CAPACITORS** | | | |
| | C914 | | CCSQCH150J50 |
| | C916 | | CCSQCH330J50 |
| | C915 | | CCSQCH470J50 |
| | C913 | | CCSQCH8R0D50 |
| | C911, C912, C921 | | CEAS101M10 |
| | C901, C923 | | CEAS471M6R3 |
| | C903 – C905, C927 | | CKSQYF103Z50 |
| | C922, C925, C928, C930, C943 | | CKSQYF104Z50 |
| | C945 | | CKSQYF104Z50 |
| | C902 | (0.1F/5.5V) | PCH1106 |
| | VC911 | | PCM1001 |
| **RESISTORS** | | | |
| | | All Resistors | RS1/10S□□□J |
| **OTHERS** | | | |
| | CN903 | 4P JUMPER CONNECTOR | 52147 – 0410 |
| | CN902 | 5P JUMPER CONNECTOR | 52147 – 0510 |
| | X911 | CRYSTAL RESONATOR | ASS1056 |
| | CN901 | PLUG 3 – P | KM250MA3 |
| | JA901 | JACK | VKB1063 |
| | X901 | CERAMIC RESONATOR | VSS1028 |

## NF KEYBOARD ASSY

| | | | |
|---|---|---|---|
| **SEMICONDUCTORS** | | | |
| | D902, D903 | | DA204K |
| **CAPACITORS** | | | |
| | C933 | | CEAL101M6R3 |
| | C934, C939 – C942 | | CKSQYF104Z50 |
| **RESISTORS** | | | |
| | | All Resistors | RS1/10S□□□J |
| **OTHERS** | | | |
| | JA902 | | RKN1038 |

# 2. SCHEMATIC DIAGRAM

**Note: When ordering service parts, be sure to refer to "EXPLODED VIEWS AND PARTS LIST" or "PCB PARTS LIST".**






BF C DF E FF GF HF

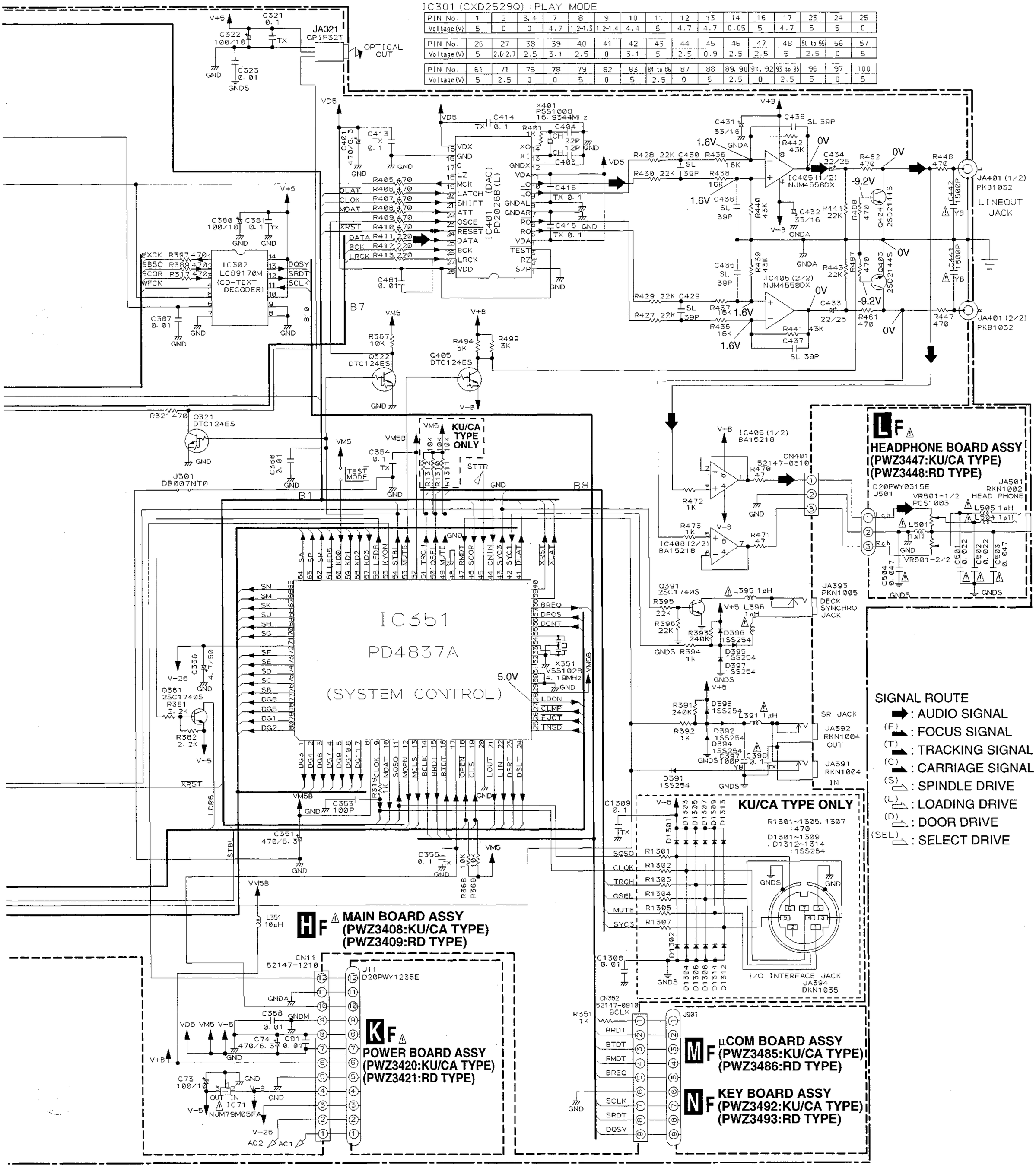
# 2.1 SENSOR BOARD ASSY, LOAD SW BOARD ASSY, SELECT MOTOR BOARD ASSY, LOADING MOTOR BOARD ASSY, CENTER LED BOARD ASSY, DOOR BOARD ASSY, MAIN BOARD ASSY AND HEADPHONE BOARD ASSY

IC301 (CXD2529Q) : PLAY MODE

| PIN No. | 1 | 2 | 3, 4 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 16 | 17 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage(V) | 5 | 0 | 0 | 4.7 | 1.2-1.3 | 1.2-1.4 | 4.4 | 5 | 4.7 | 4.7 | 0.05 | 5 | 4.7 | 5 | 5 | 0 |

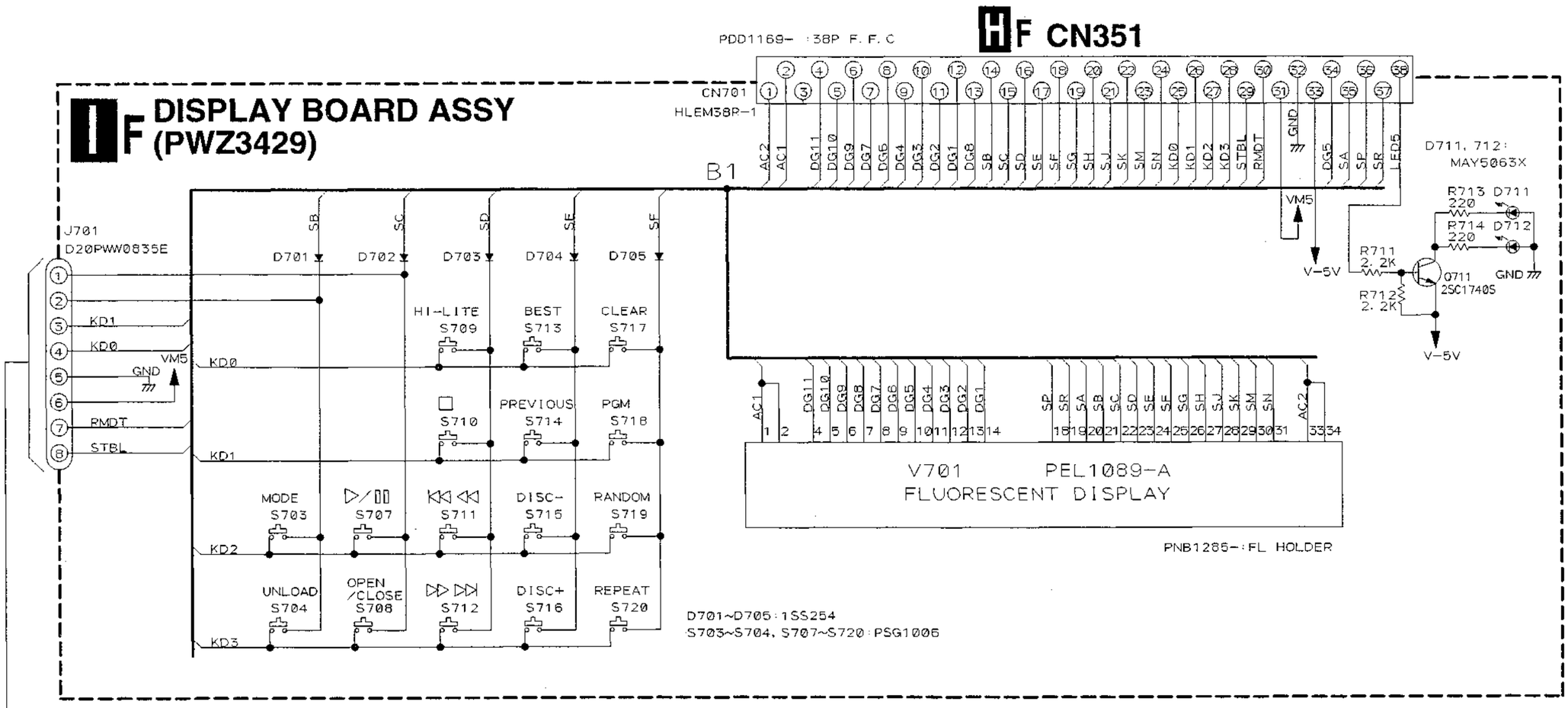
| PIN No. | 26 | 27 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 50 to 55 | 56 | 57 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage(V) | 5 | 2.6-2.7 | 2.5 | 3.1 | 2.5 | 0 | 3.1 | 5 | 2.5 | 0.9 | 2.5 | 2.5 | 5 | 2.5 | 0 | 5 |

| PIN No. | 61 | 71 | 75 | 76 | 79 | 82 | 83 | 84 to 86 | 87 | 88 | 89, 90 | 91, 92 | 93 to 95 | 96 | 97 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Voltage(V) | 5 | 2.5 | 0 | 0 | 5 | 0 | 5 | 2.5 | 0 | 5 | 2.5 | 0 | 2.5 | 5 | 0 | 5 |



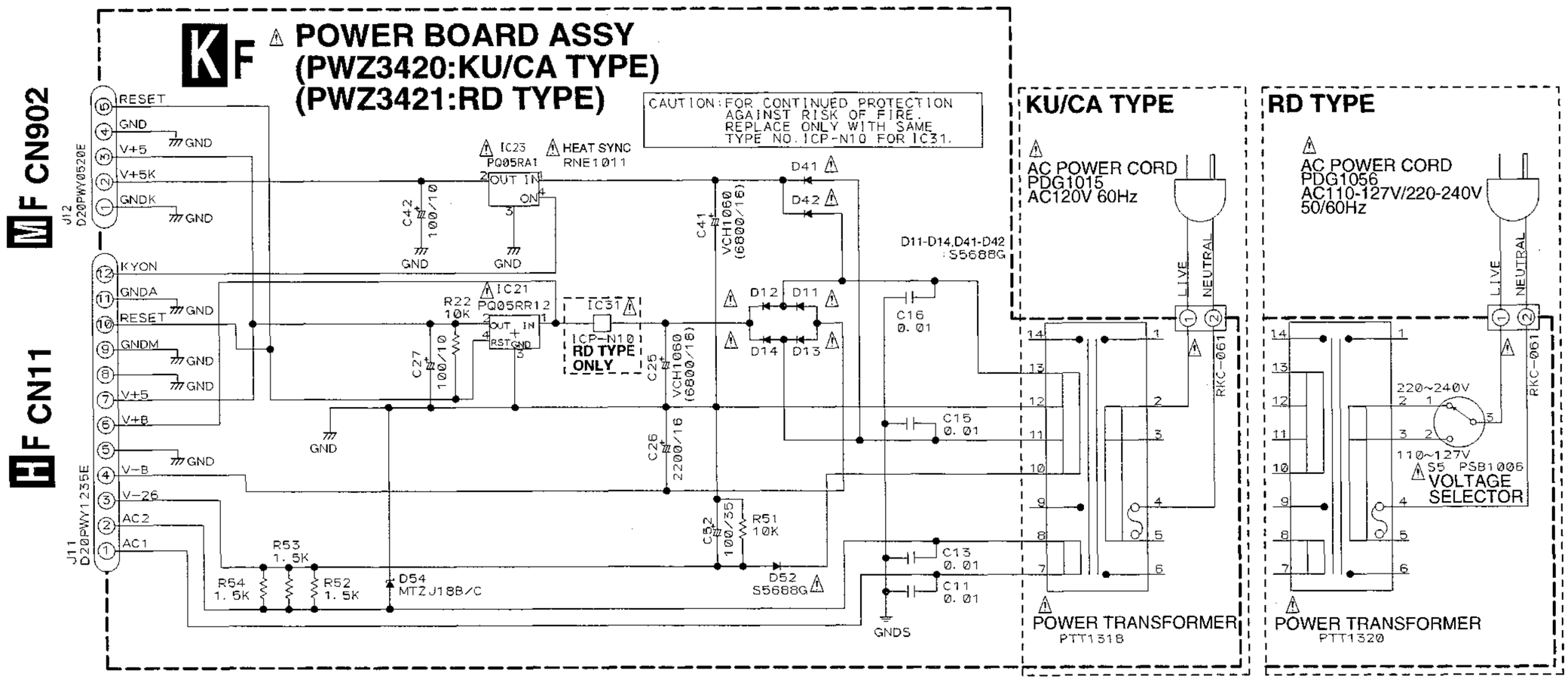

Note:The numbers marked with a circle show the number of each measuring point, which correspond \to the number in the service manual PD-F906 (ORDER NO. RRV1723) on page15.

## 2.2 DISPLAY BOARD ASSY, SWITCH BOARD ASSY AND POWER BOARD ASSY




DISPLAY BOARD ASSY
- S703: MODE
- S704: UNLOAD
- S707: ▷/▯▯
- S708: OPEN/CLOSE
- S709: HI-LITE
- S710: □
- S711: ⏮◁◁
- S712: ▷▷⏭
- S713: BEST
- S714: PREVIOUS
- S715: DISC-
- S716: DISC+
- S717: CLEAR
- S718: PROGRAM
- S719: RANDOM
- S720: REPEAT

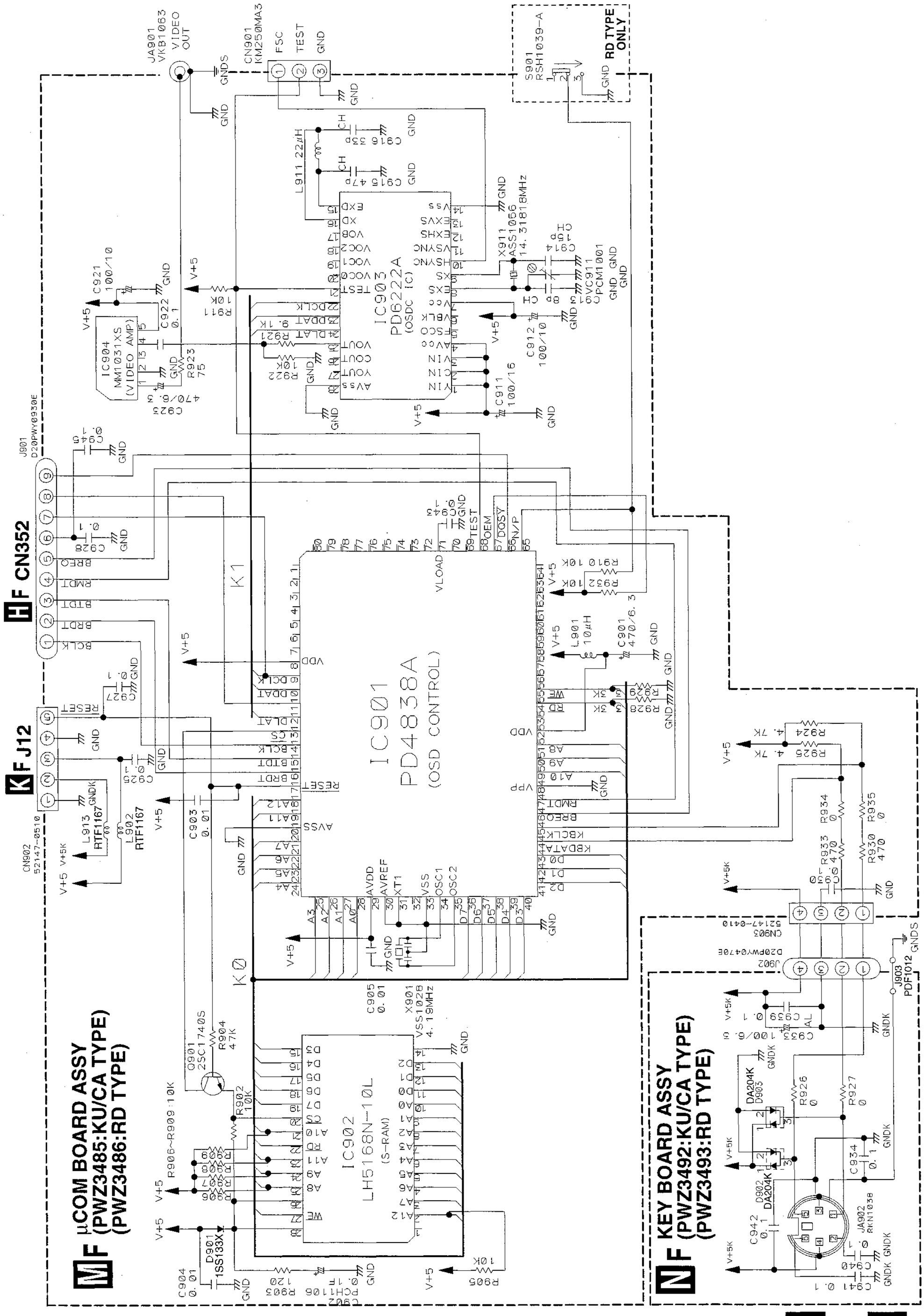
SWITCH BOARD ASSY
- S751: SINGLE LOADER ACCESS
- S752: SINGLE LOADER PLAY
- S753: POWER STADBY/ON






IF JF KF

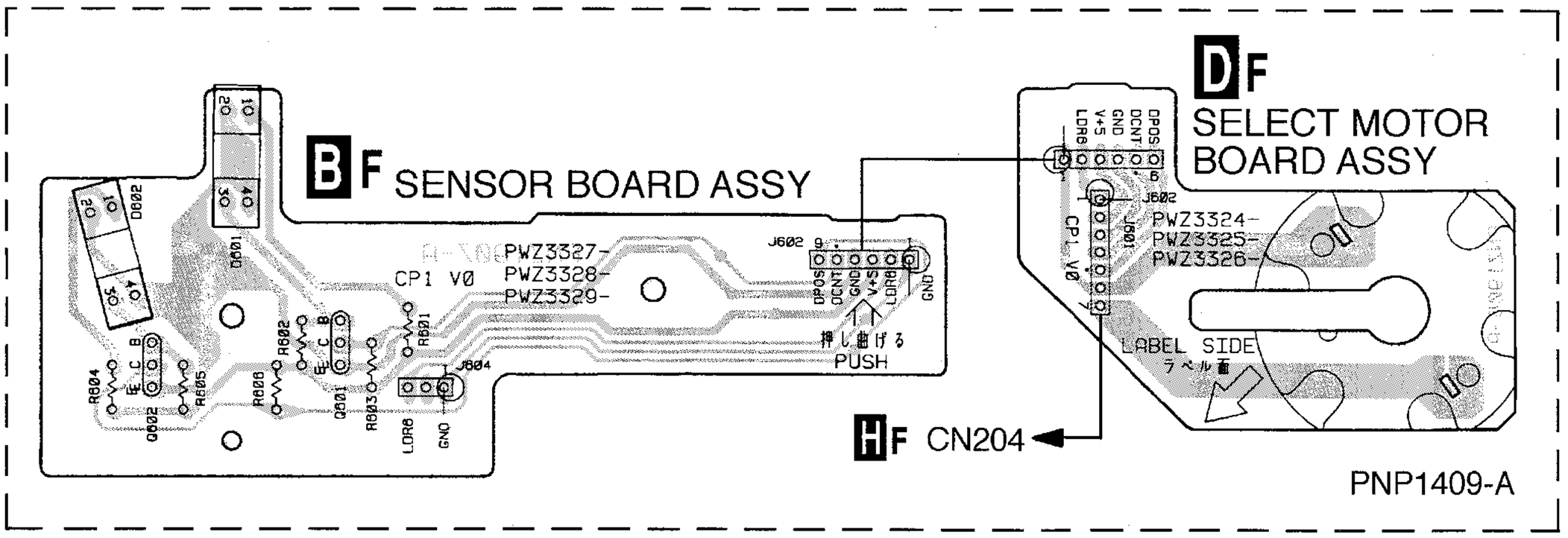
## 2.3 μCOM BOARD ASSY AND KEY BOARD ASSY

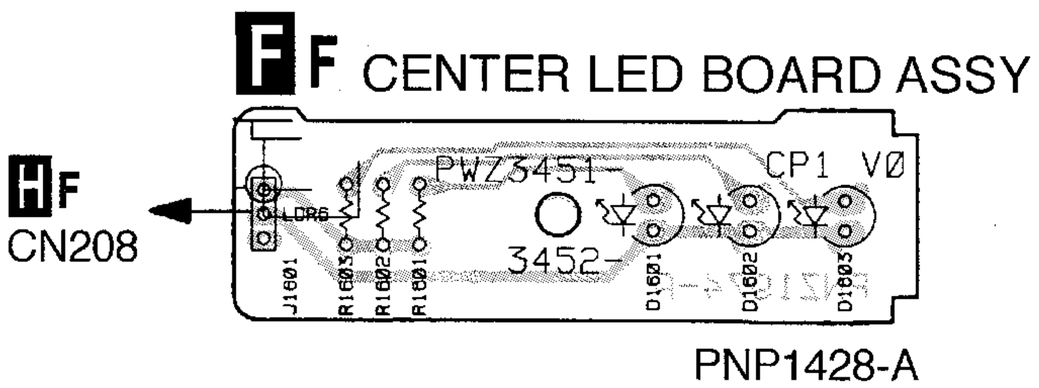


# 3. PCB CONNECTION DIAGRAM

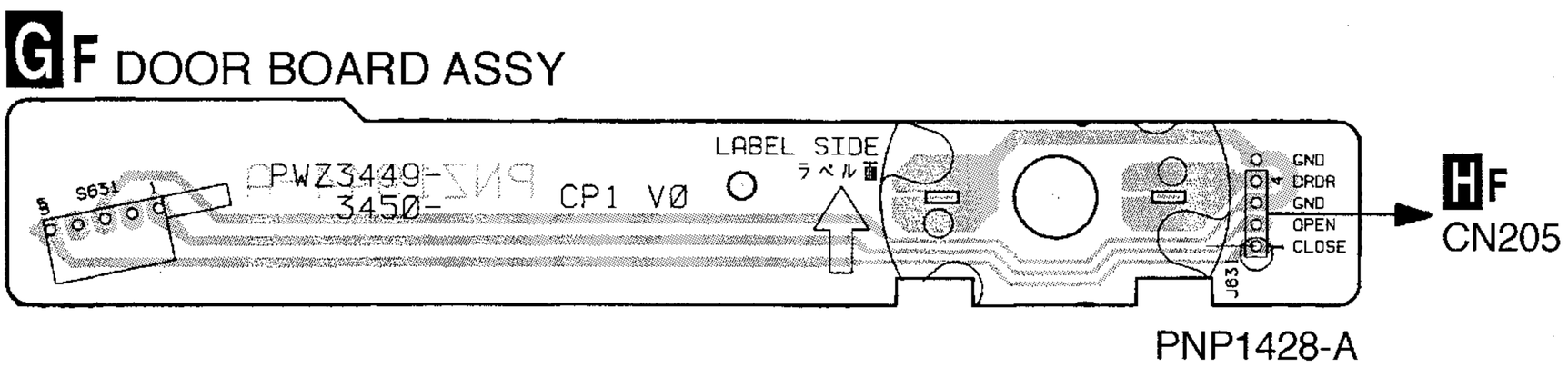
## 3.1 SENSOR BOARD ASSY, SELECT MOTOR BOARD ASSY, CENTER LED BOARD ASSY, DOOR BOARD ASSY AND HEADPHONE BOARD ASSY

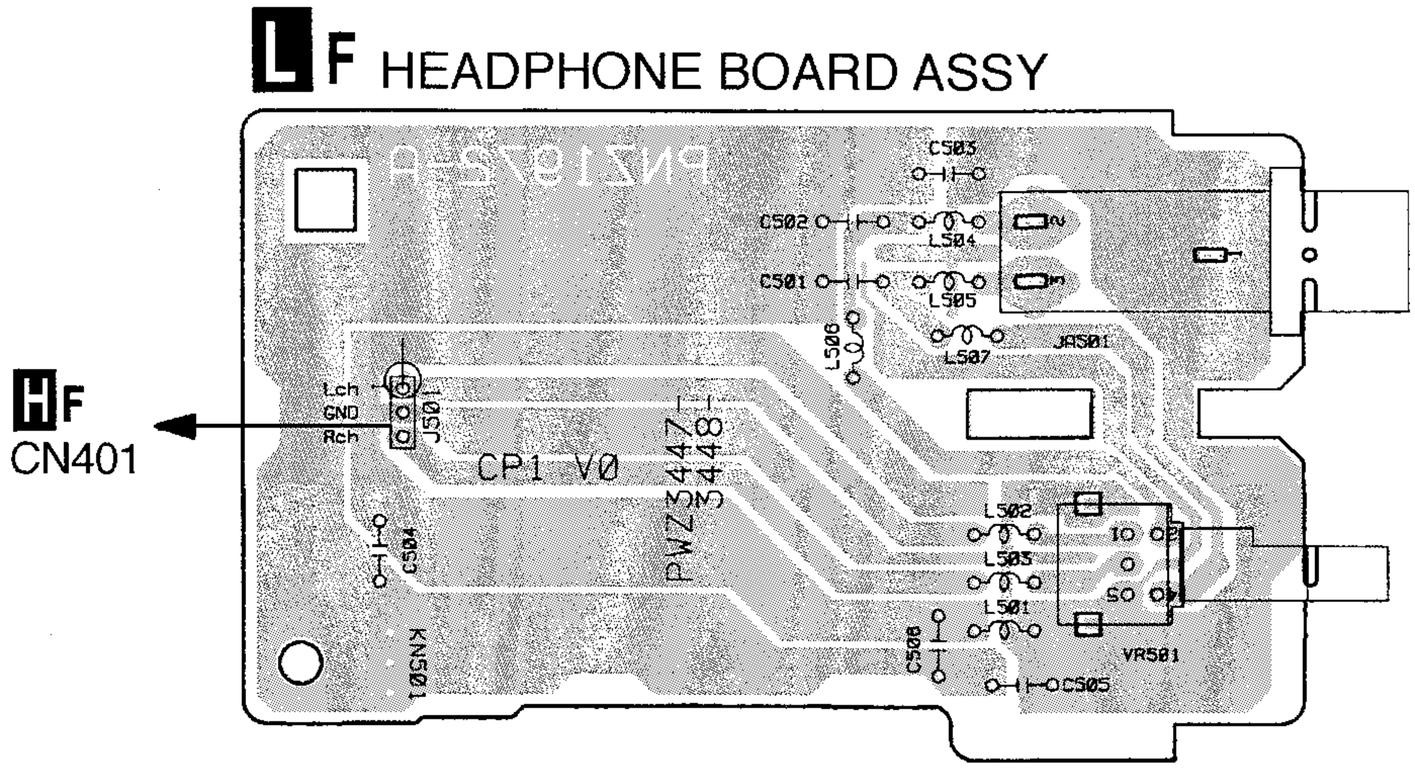
SELECT MECHA BOARD ASSY




SIDE A

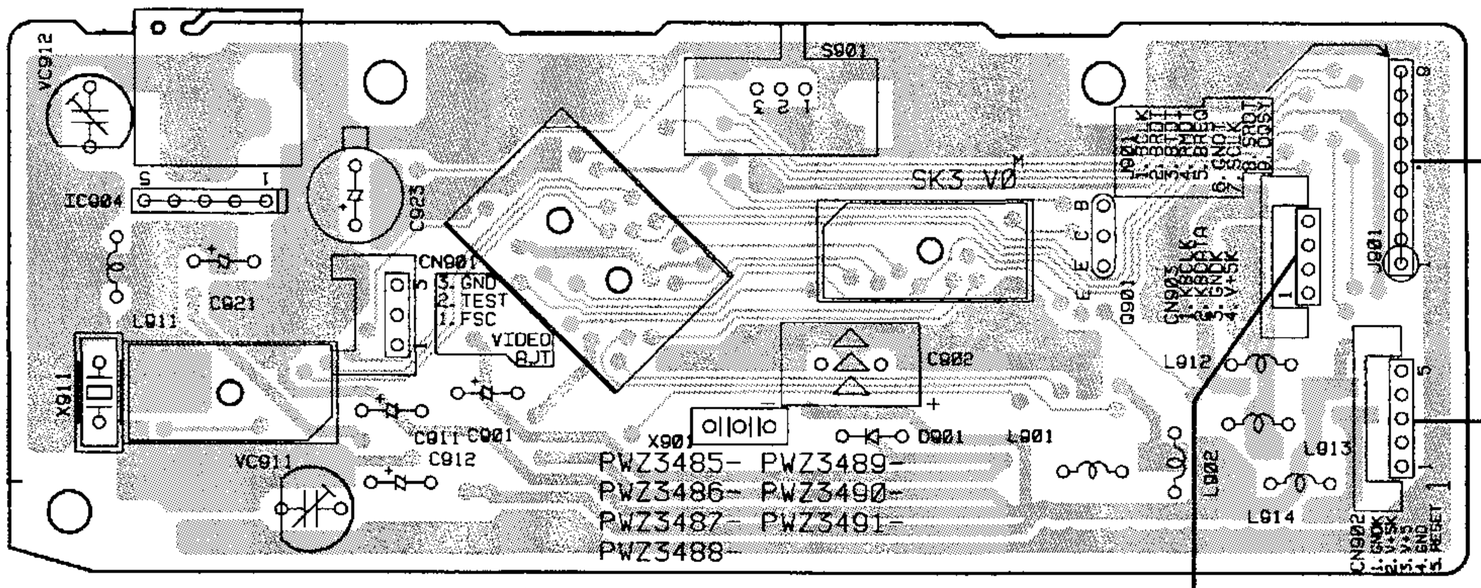


## 3.2 μCOM BOARD ASSY AND KEY BOARD ASSY

**SIDE A**

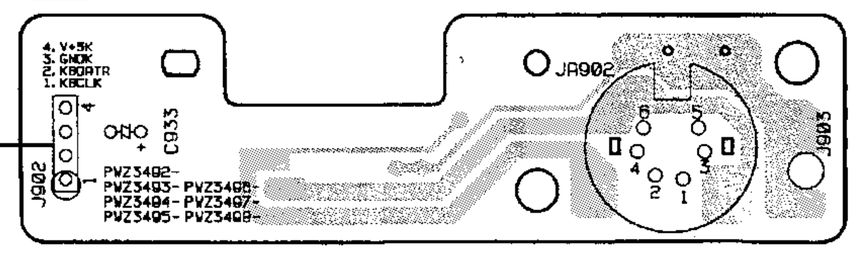
**MF** μCOM BOARD ASSY




**HF**
CN352

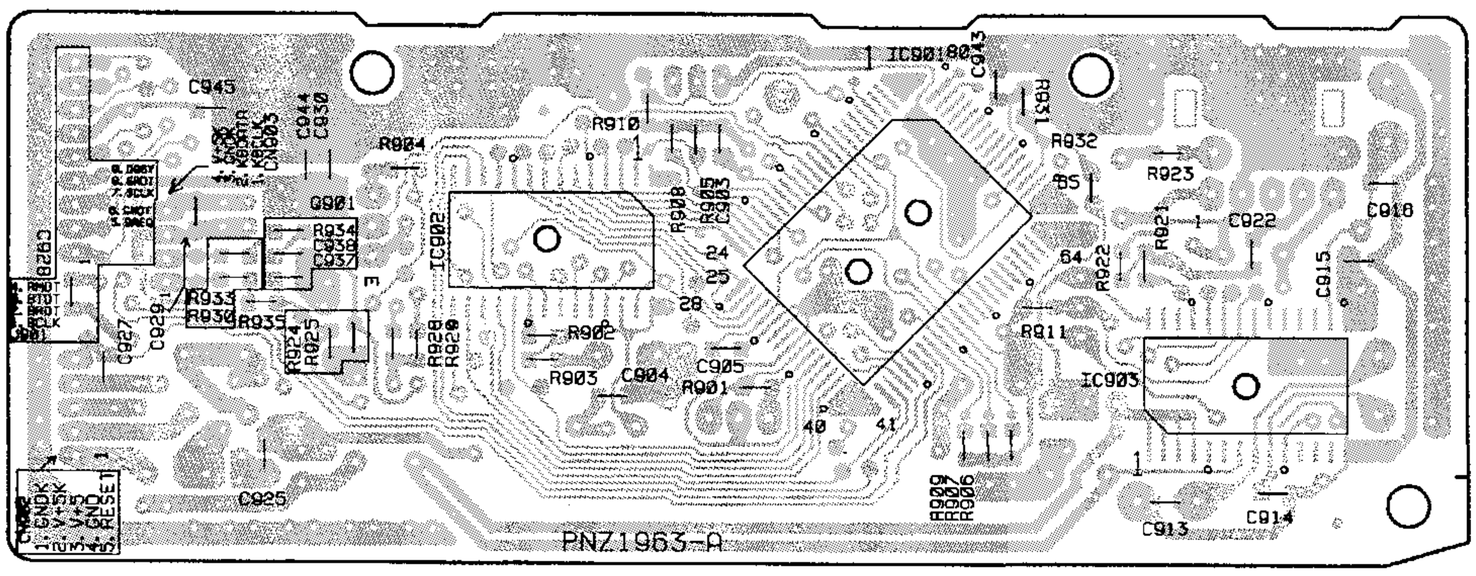
**KF**
J12

**NF** KEY BOARD ASSY

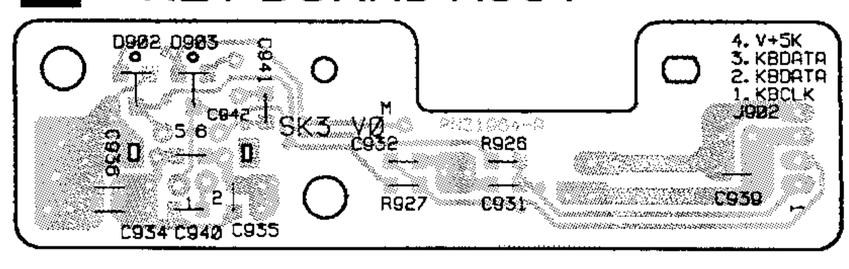



**SIDE B**

**MF** μCOM BOARD ASSY



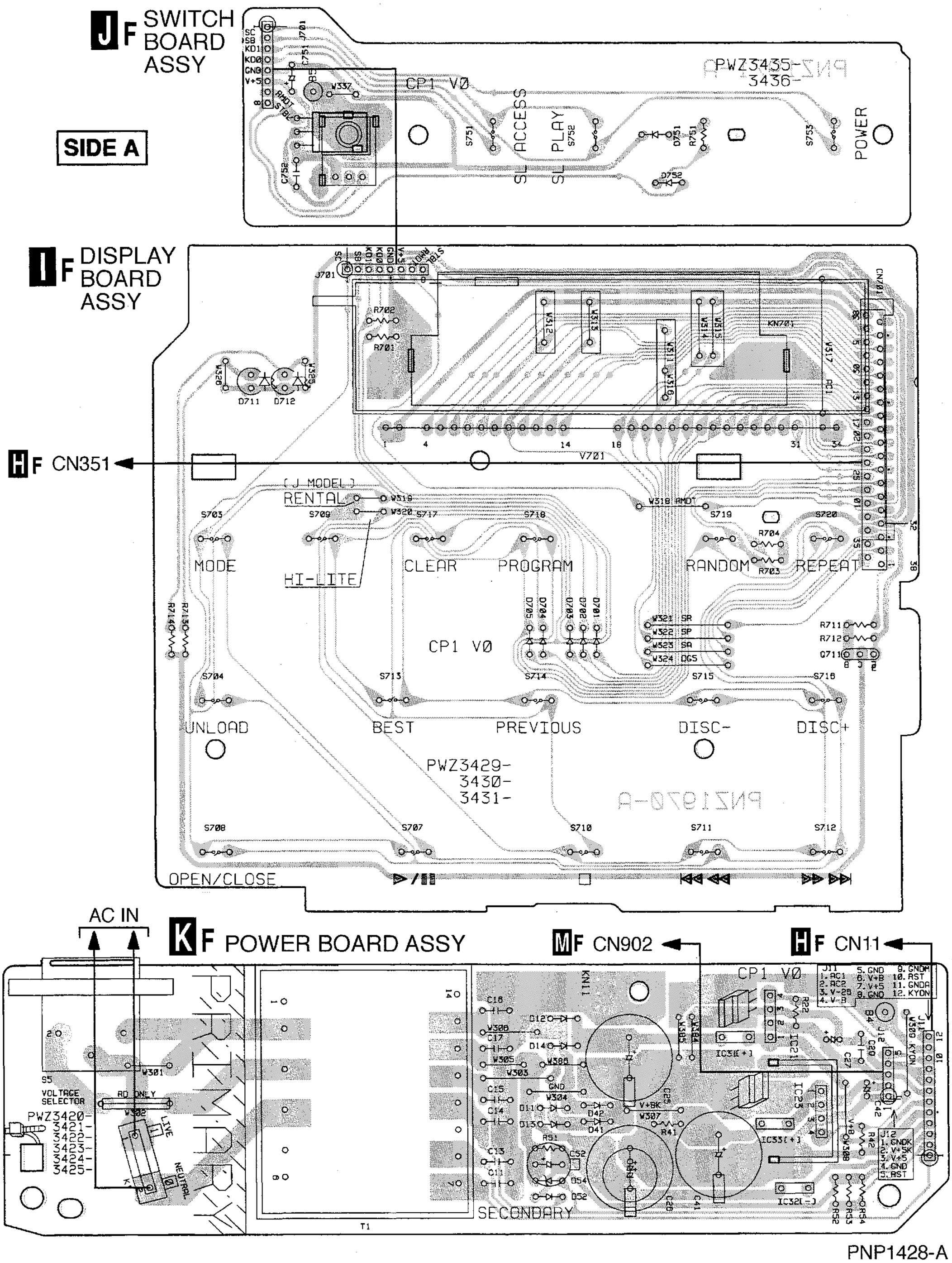

**NF** KEY BOARD ASSY



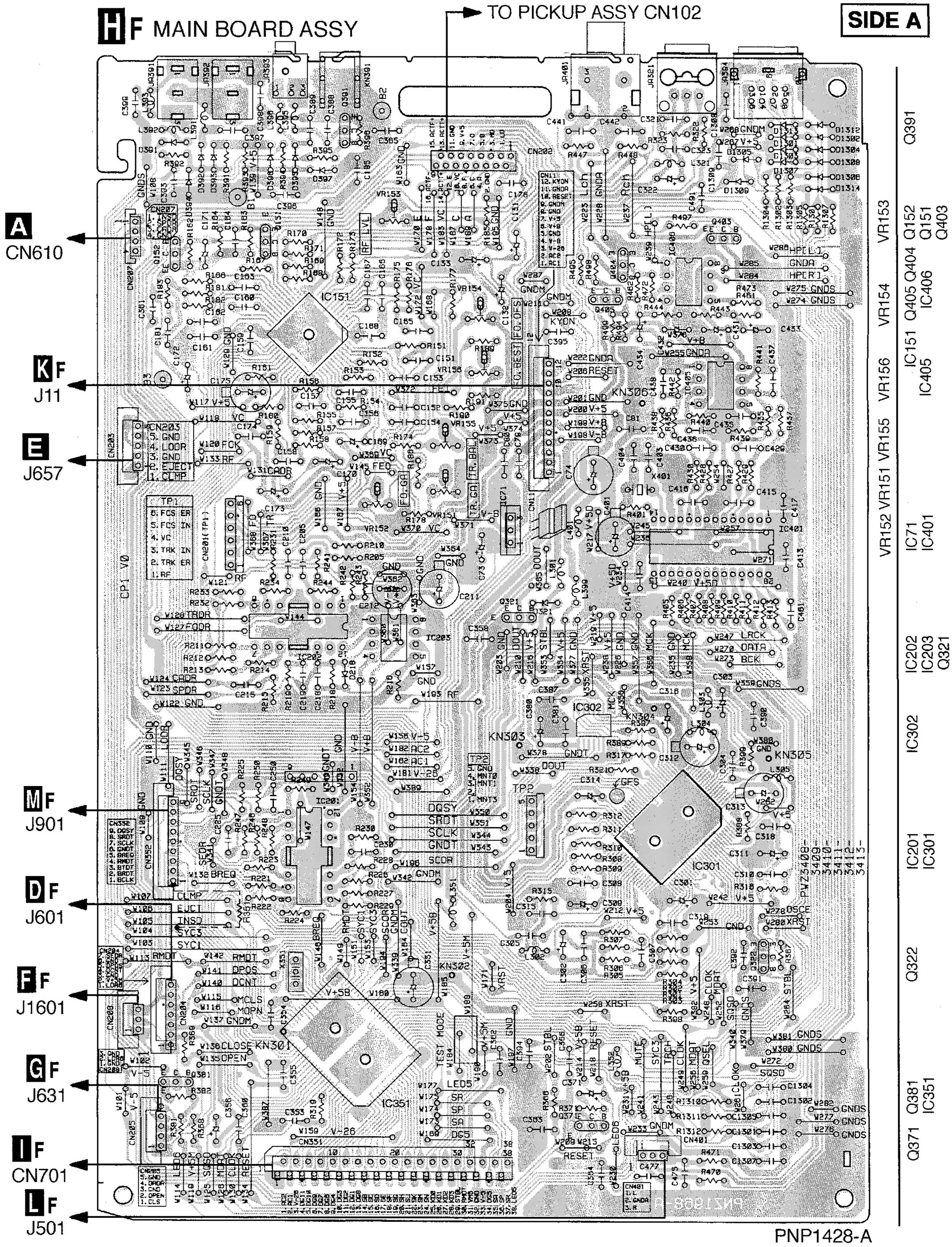

PNP1422-A

**MF NF**

## 3.3 DISPLAY BOARD ASSY, SWITCH BOARD ASSY AND POWER BOARD ASSY



## 3.4 MAIN BOARD ASSY



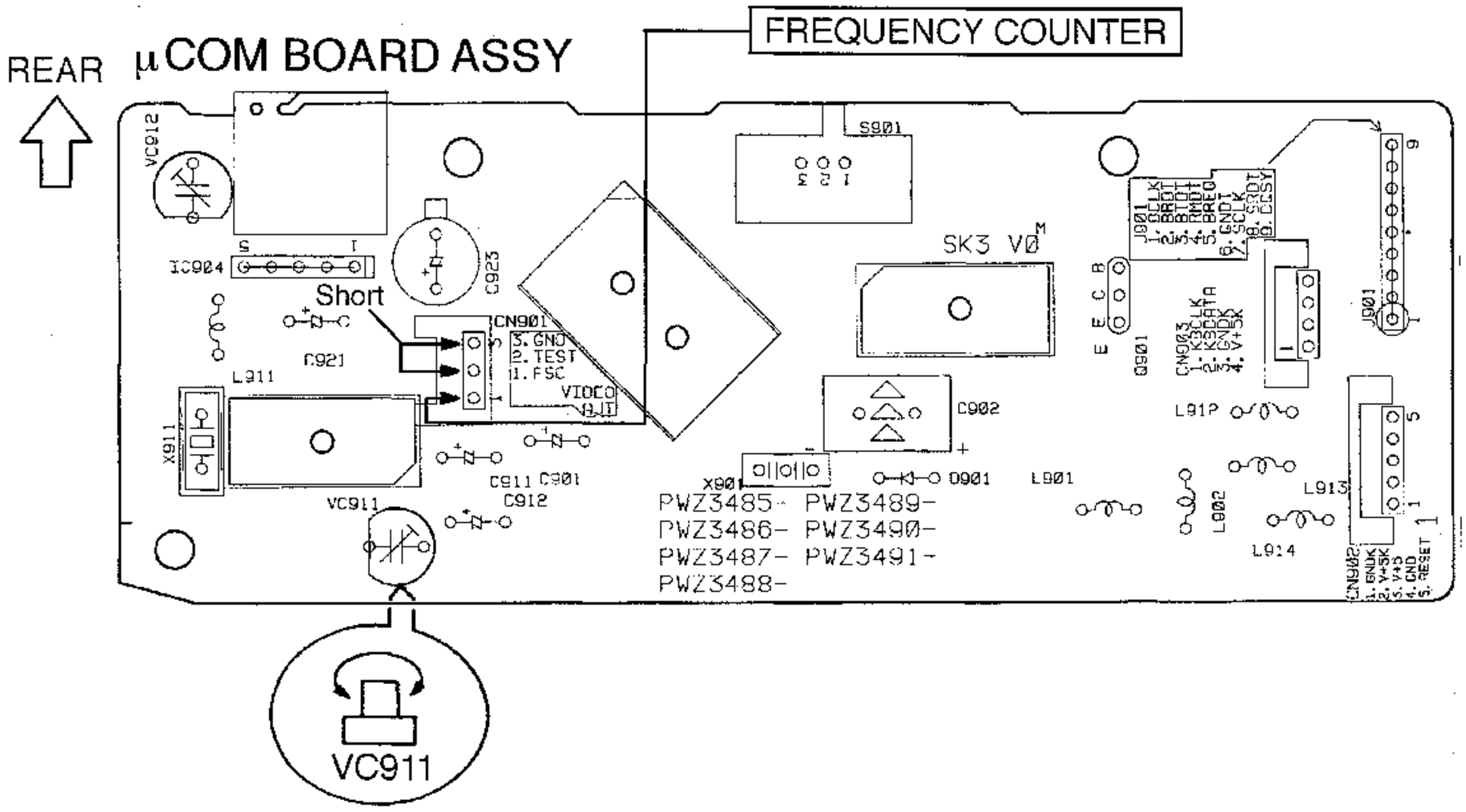
# 4. ADJUSTMENTS

## ■ CHROMA FREQUENCY ADJUSTMENT

Symptom when out of adjustment:
The TV picture is not in color (Black-and-white picture).

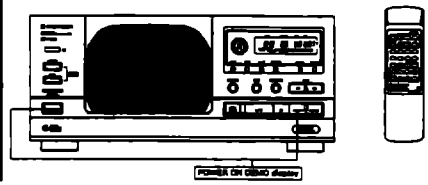
### Procedure

1. Short-circuit pin 2 and pin 3 of connector CN901 of the µCOM BOARD ASSY.
2. Connect a frequency counter to pin 1 of CN901.
   Adjust VC911 so that the frequency is within 3.579545 MHz ±5 Hz.



# Service Manual

PIONEER
*The Art of Entertainment*



ORDER NO.
**RRV1723**

## FILE-TYPE CD PLAYER

# PD-F906

**THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).**

| Type | Model | Power Requirement | Remarks |
|---|---|---|---|
| | PD-F906 | | |
| KU | O | AC120V | |
| KC | O | AC120V | |

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**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
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**PIONEER ELECTRONIC [EUROPE] N.V.** Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 501 Orchard Road, #10-00 Lane Crawford Place, Singapore 0923



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T-FZY DEC. 1996 Printed in Japan

# 1. SAFETY INFORMATION

**This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.**
**Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.**

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

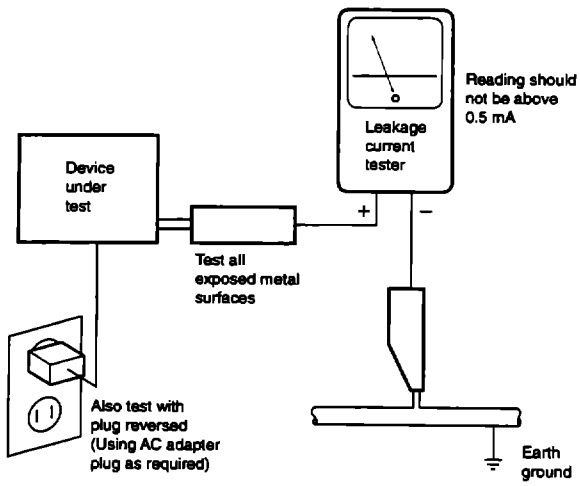
## (FOR USA MODEL ONLY)

### 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.


Reading should not be above 0.5 mA
Leakage current tester
Device under test
+
−
Test all exposed metal surfaces
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

**ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.**

### 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

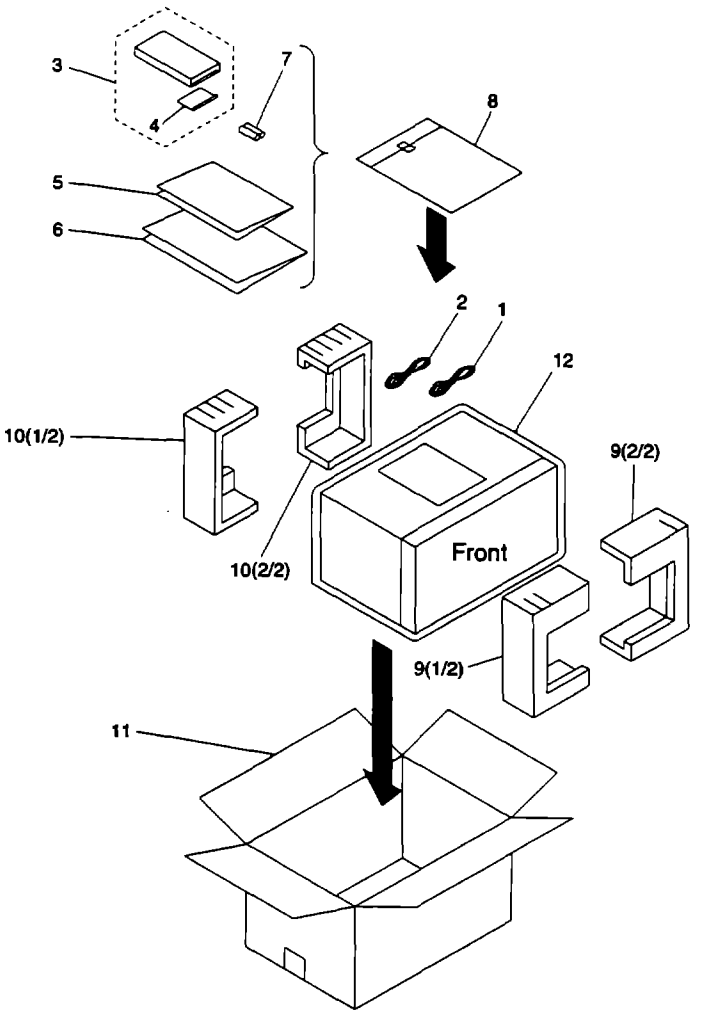
Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

# 2. EXPLODED VIEWS AND PARTS LIST

*NOTES:* • *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
• *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
• *Screws adjacent to ▼ mark on product are used for disassembly.*

## 2.1 PACKING




### (1) Parts List

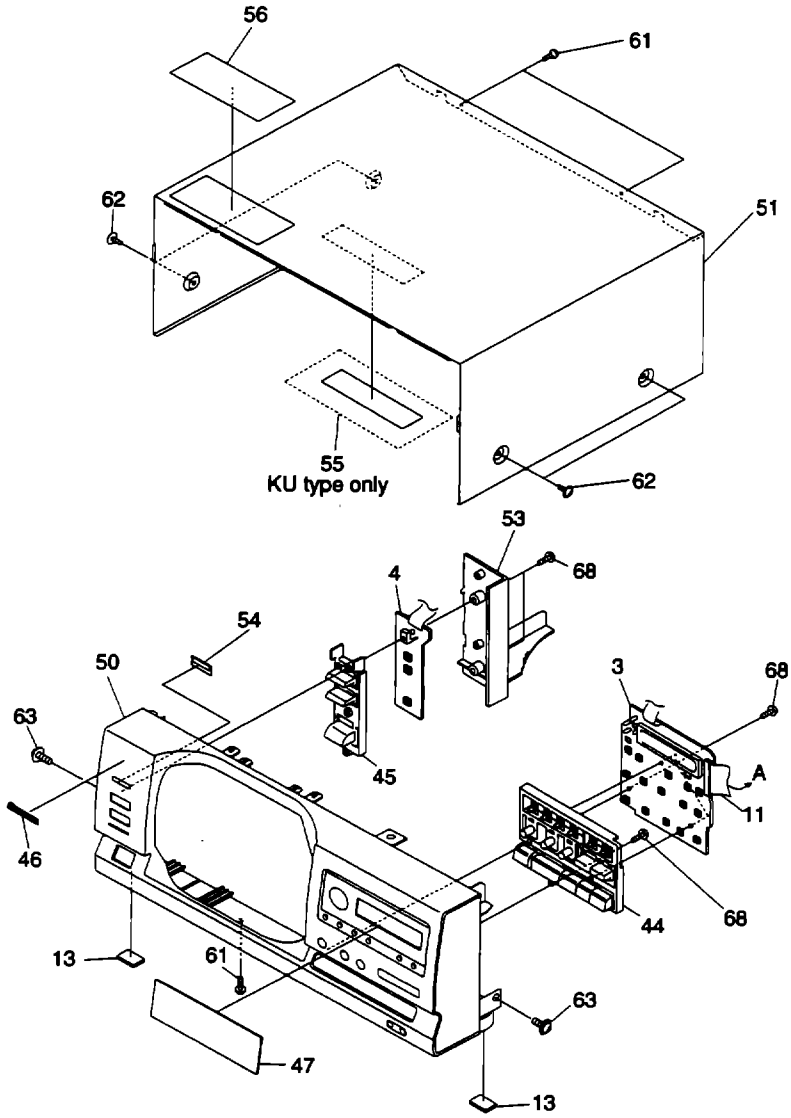
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Control Cable (L=1.0m) | PDE1247 |
| | 2 | Output Cable (L=1.0m) | PDE1248 |
| | 3 | Remote Control Unit | PWW1108 |
| | 4 | Battery Cover | AZN2249 |
| NSP | 5 | Warranty Card | See Contrast table (2) |
| | 6 | Operating Instructions | See Contrast table (2) |
| NSP | 7 | Battery (R6P, AA) | VEM – 013 |
| | 8 | Polyethlene Bag | Z21 – 038 |
| | 9 | Styrol Protector F | PHA1307 |
| | 10 | Styrol Protector R | PHA1308 |
| | 11 | Packing Case | See Contrast table (2) |
| | 12 | Mirror Mat | Z23 – 020 |

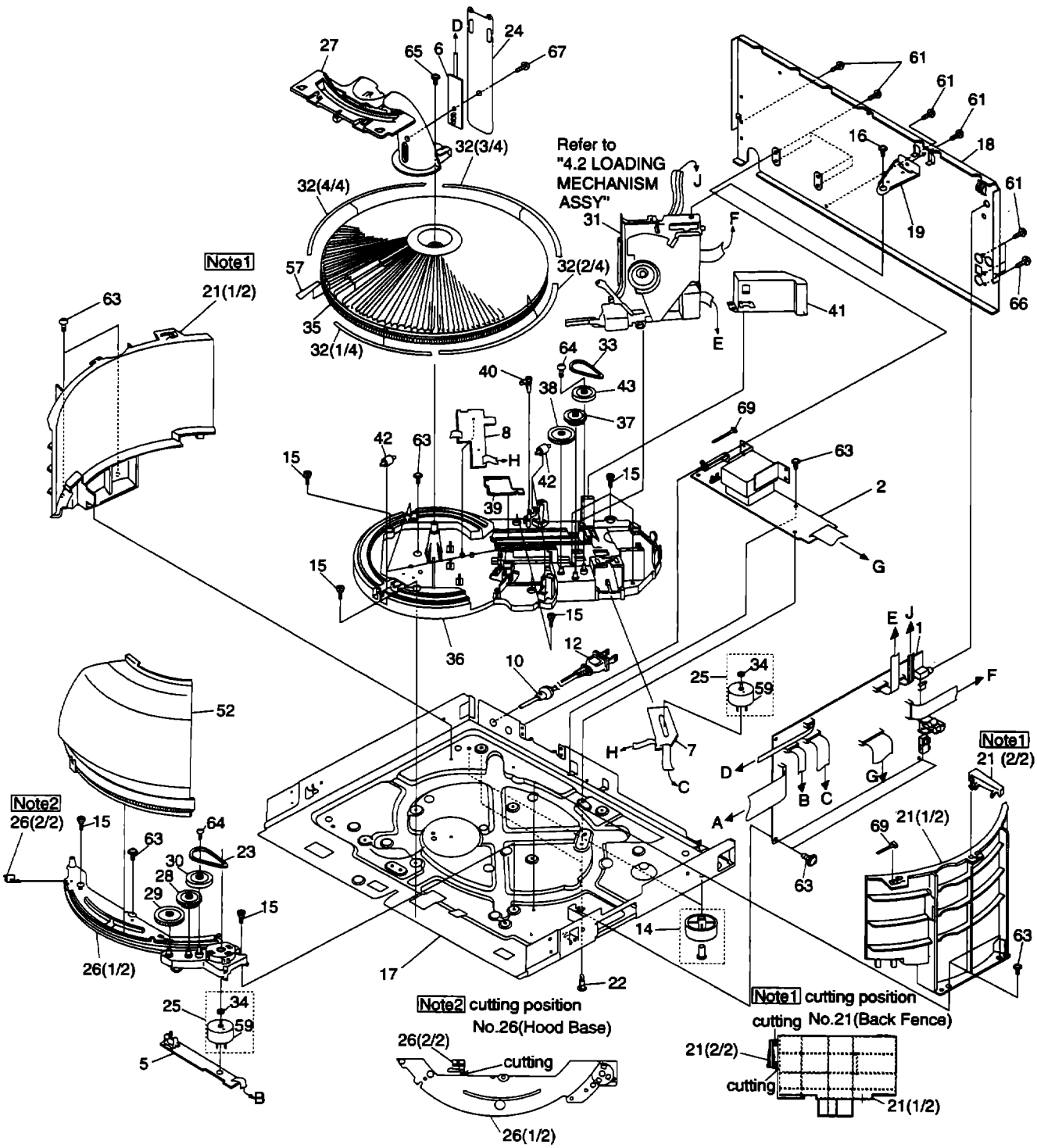
### (2) Contrast Table

KU and KC have the same construction except for the following:

| Mark | No. | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | KU TYPE | KC TYPE | |
| NSP | 5 | Warranty Card | ARY1044 | ARY1039 | |
| | 6 | Operating instructions (English) | PRB1253 | PRB1253 | |
| | 6 | Operating instructions (French) | Not used | PRD1020 | |
| | 11 | Packing Case | PHG2226 | PHG2232 | |

## 2.2 EXTERIOR


56
61
62
51
55
KU type only
62
53
68
4
54
50
3
68
63
45
A
11
46
68
44
13
61
63
47
13


Refer to "4.2 LOADING MECHANISM ASSY"
Note1
Note2
Note2 cutting position
No.26(Hood Base)
Note1 cutting position
cutting No.21(Back Fence)
cutting

## (1) Parts List

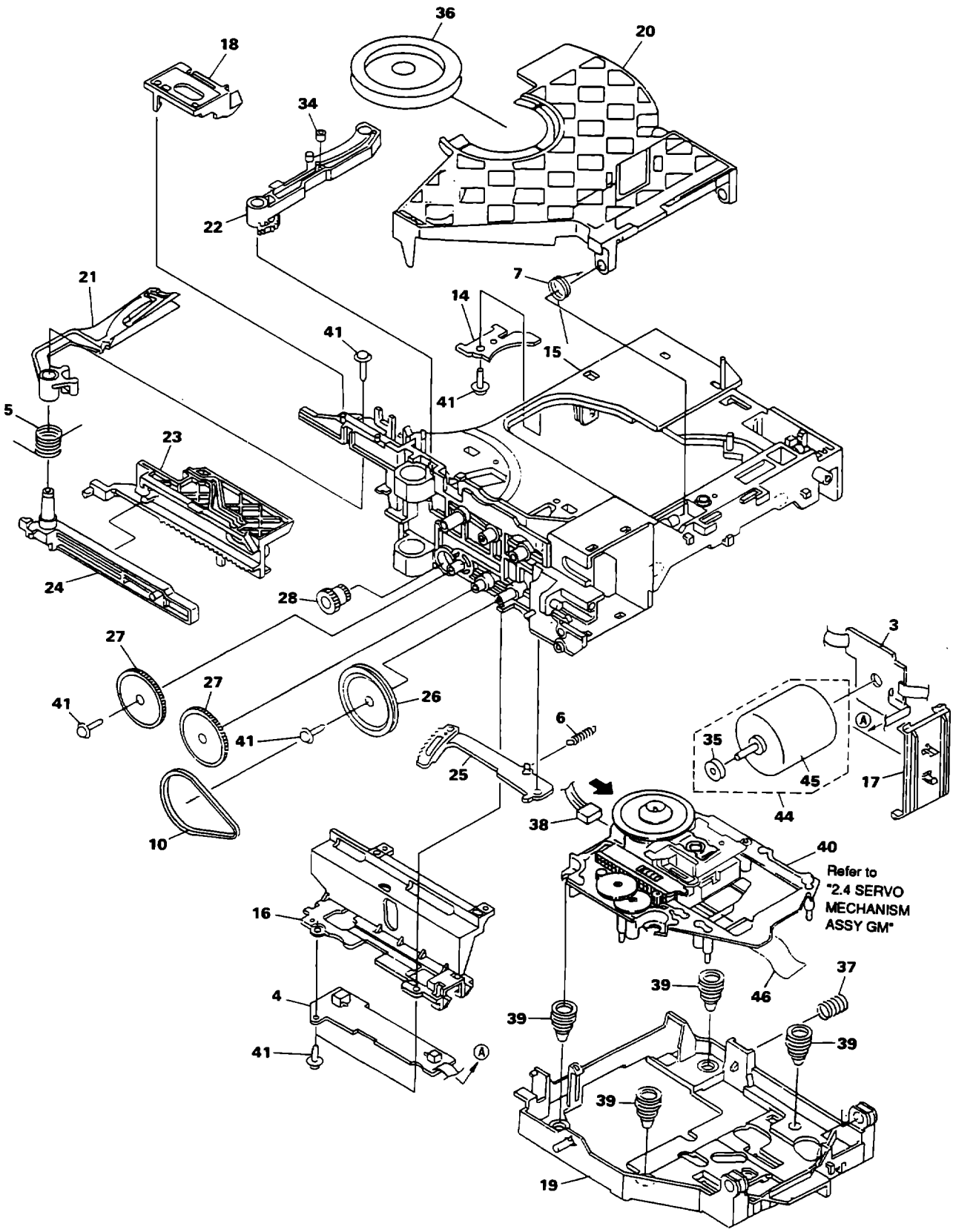
| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Main Board Assy | PWZ3400 |
| | 2 | Power Board Assy | PWZ3414 |
| | 3 | Display Board Assy | PWZ3426 |
| NSP | 4 | Switch Board Assy | PWZ3432 |
| NSP | 5 | Door Board Assy | PWZ3441 |
| NSP | 6 | Center LED Board Assy | PWZ3443 |
| NSP | 7 | Select Motor Board Assy | PWZ3324 |
| NSP | 8 | Sensor Board Assy | PWZ3327 |
| | 9 | ..... | |
| ⚠ | 10 | Cord Stopper | CM – 22C |
| | 11 | 32P F.F.C/30V | PDD1167 |
| ⚠ | 12 | AC Power Cord | PDG1015 |
| | 13 | Rubber Sheet | AEB1111 |
| | 14 | Foot Assy | AEC1531 |
| | 15 | Screw C | PBA1106 |
| | 16 | Screw | PBA1108 |
| NSP | 17 | Under Base | PNA2255 |
| | 18 | Rear Base | PNA2317 |
| | 19 | Stopper Angle | PNB1559 |
| | 20 | ..... | |
| | 21 | Back Fence | PNW2671 |
| NSP | 22 | Locking Card Spacer | VEC1596 |
| | 23 | Belt | PEB1288 |
| | 24 | Cover | PNM1294 |
| | 25 | Motor Assy | PEA1333 |
| | 26 | Hood Base | PNW2633 |
| | 27 | Center Pole | PNW2634 |
| | 28 | Gear | PNW2641 |
| | 29 | Gear | PNW2642 |
| | 30 | Gear Pulley | VNL1662 |
| | 31 | Loading Mechanism Assy | PXA1589 |
| | 32 | Rack Label | PAM1732 |
| | 33 | Belt | PEB1288 |
| | 34 | Motor Pulley | PNW1634 |
| | 35 | Disc Rack | PNW2632 |
| | 36 | Mecha Base | PNW2639 |
| | 37 | Gear | PNW2641 |
| | 38 | Gear | PNW2642 |
| | 39 | Slider | PNW2643 |
| | 40 | Lock Lever | PNW2644 |
| | 41 | Mecha Stopper | PNW2646 |
| | 42 | Roller | PNW2647 |
| | 43 | Gear Pulley | VNL1662 |
| | 44 | Control Button | PAC1822 |
| | 45 | Power Button | PAC1833 |
| | 46 | Name Plate | PAM1704 |
| | 47 | Display Window | PAM1725 |
| | 48 | ..... | |
| | 49 | ..... | |
| | 50 | Operation Panel | PNW2742 |
| | 51 | Bonnet Case | PYY1191 |
| | 52 | Hood | PNW2732 |
| | 53 | Side Fence | PNW2674 |
| | 54 | Sensor Acryl | VNK1566 |
| | 55 | 65 Label | See Contrast table (2) |
| | 56 | Label | PRW1428 |
| | 57 | Label | PRW1429 |
| | 58 | ..... | |
| | 59 | Slider Motor | VXM1033 |
| | 60 | ..... | |
| | 61 | Screw | BBZ30P080FZK |
| | 62 | Screw | FBT40P080FZK |
| | 63 | Screw | IBZ30P060FMC |
| | 64 | Screw | IPZ20P080FMC |
| | 65 | Screw | IPZ30P080FCU |
| | 66 | Screw | PMZ30P060FZK |
| | 67 | Screw | PPZ30P050FMC |
| | 68 | Screw | PPZ30P100FMC |
| | 69 | Binder | Z09 – 056 |

## (2) Contrast Table

KU and KC have the same construction except for the following:

| Mark | No. | Symbol & Description | Part No. | | Remarks |
|---|---|---|---|---|---|
| | | | KU TYPE | KC TYPE | |
| | 55 | 65 Label | ORW1069 | Not used | |

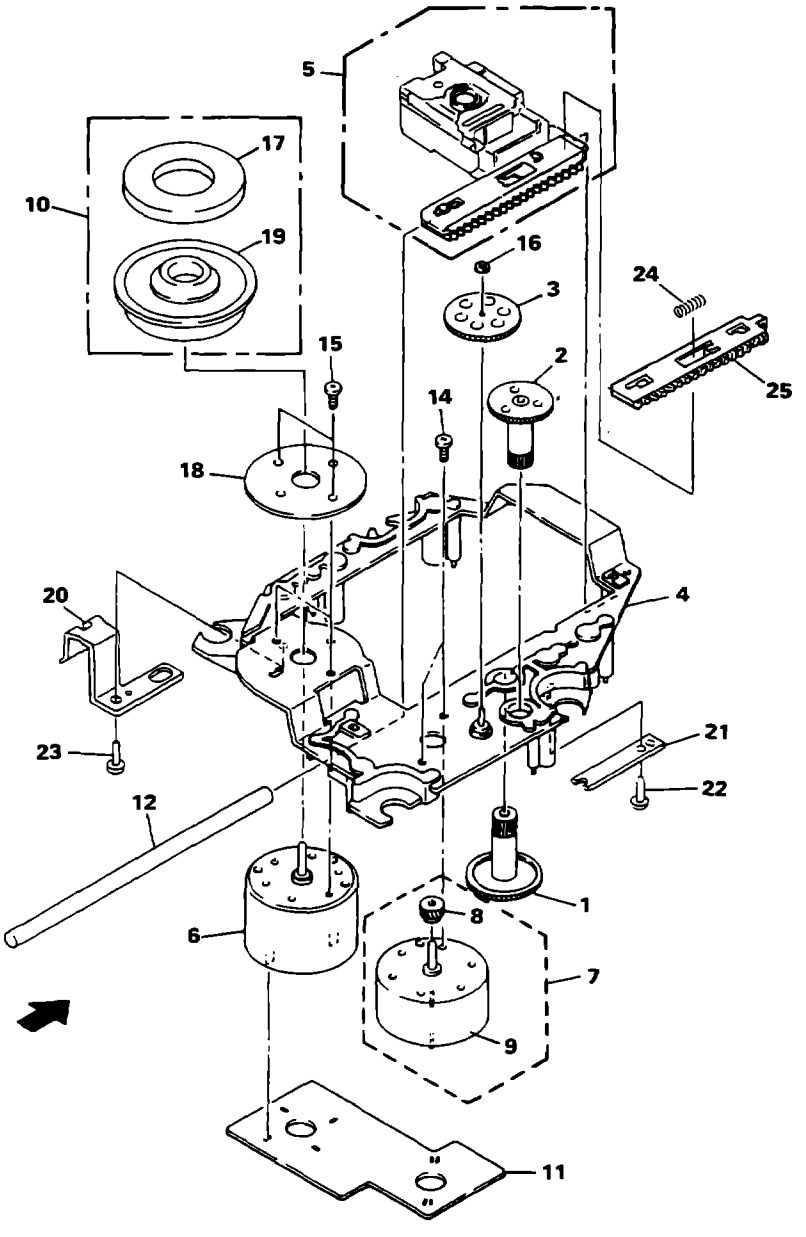
## 2.3 LOADING MECHANISM ASSY



## Parts List

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | ..... | |
| | 2 | ..... | |
| NSP | 3 | Loading Motor Board Assy | PWZ3337 |
| NSP | 4 | Load SW Board Assy | PWZ3334 |
| | 5 | Arm A Spring2 | ABH7124 |
| | 6 | Gear Plate Spring | ABH7051 |
| | 7 | Clamp Spring | ABH7107 |
| | 8 | ..... | |
| | 9 | ..... | |
| | 10 | Loading Belt | AEB7029 |
| | 11 | ..... | |
| | 12 | ..... | |
| | 13 | ..... | |
| NSP | 14 | Servo Stopper S | ANB7047 |
| | 15 | Loading Base | ANW7086 |
| | 16 | Cam Cover | ANW7052 |
| | 17 | Motor Holder | ANW7053 |
| | 18 | Sensor Holder | ANW7054 |
| | 19 | Float Base 96 | PNW2700 |
| | 20 | Clamper Holder | ANW7084 |
| | 21 | Arm (A) | ANW7057 |
| | 22 | Arm (B) | ANW7058 |
| | 23 | Drive Plate | ANW7059 |
| | 24 | Arm Plate | ANW7060 |
| | 25 | Gear Plate | ANW7111 |
| | 26 | Gear Pulley (B) | ANW7062 |
| | 27 | Gear A | ANW7063 |
| | 28 | Drive Gear | ANW7064 |
| | 29 | ..... | |
| | 30 | ..... | |
| | 31 | ..... | |
| | 32 | ..... | |
| | 33 | ..... | |
| | 34 | Roller B | ANW7075 |
| | 35 | Motor Pulley | PNW1634 |
| | 36 | Clamper | PNW2692 |
| | 37 | Float Spring | ABH7049 |
| | 38 | Connector Assy (4P) | RDE1043 |
| | 39 | Float Rubber | AEB7028 |
| NSP | 40 | Servo Mechanism Assy GM | PXA1591 |
| | 41 | Screw | IPZ20P080FMC |
| | 42 | ..... | |
| | 43 | ..... | |
| | 44 | Motor Assy | AEA7006 |
| | 45 | Loading Motor | VXM1034 |
| | 46 | 16P FFC/30V | PDD1180 |
| | | Froil (for Service) | GYA1001 |
| | | Ha Narl (for Service) | GEM1016 |

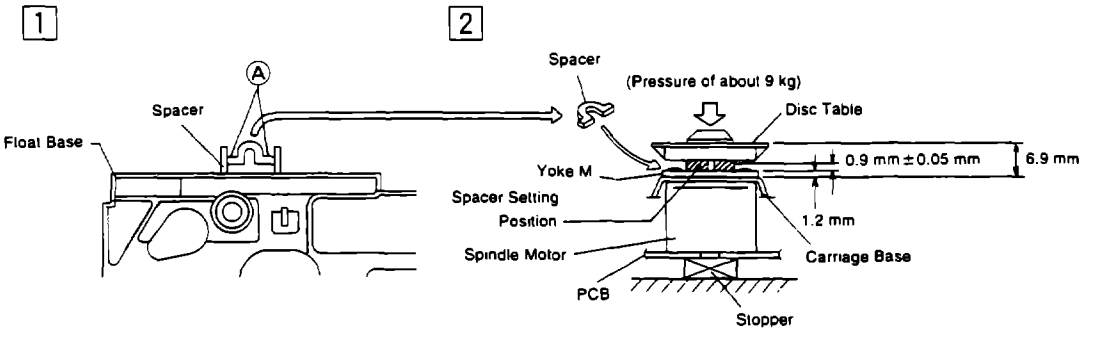
## 2.4 SERVO MECHANISM ASSY GM




● How to install the disc table

1 Use nipper or other tool to cut the two sections marked Ⓐ figure 1.
Then remove the spacer.

2 While supporting the spindle motor shaft with the stopper, put spacer on top of the yoke M, and stick the disc table on top (takes about 9kg pressure). Take off the spacer.



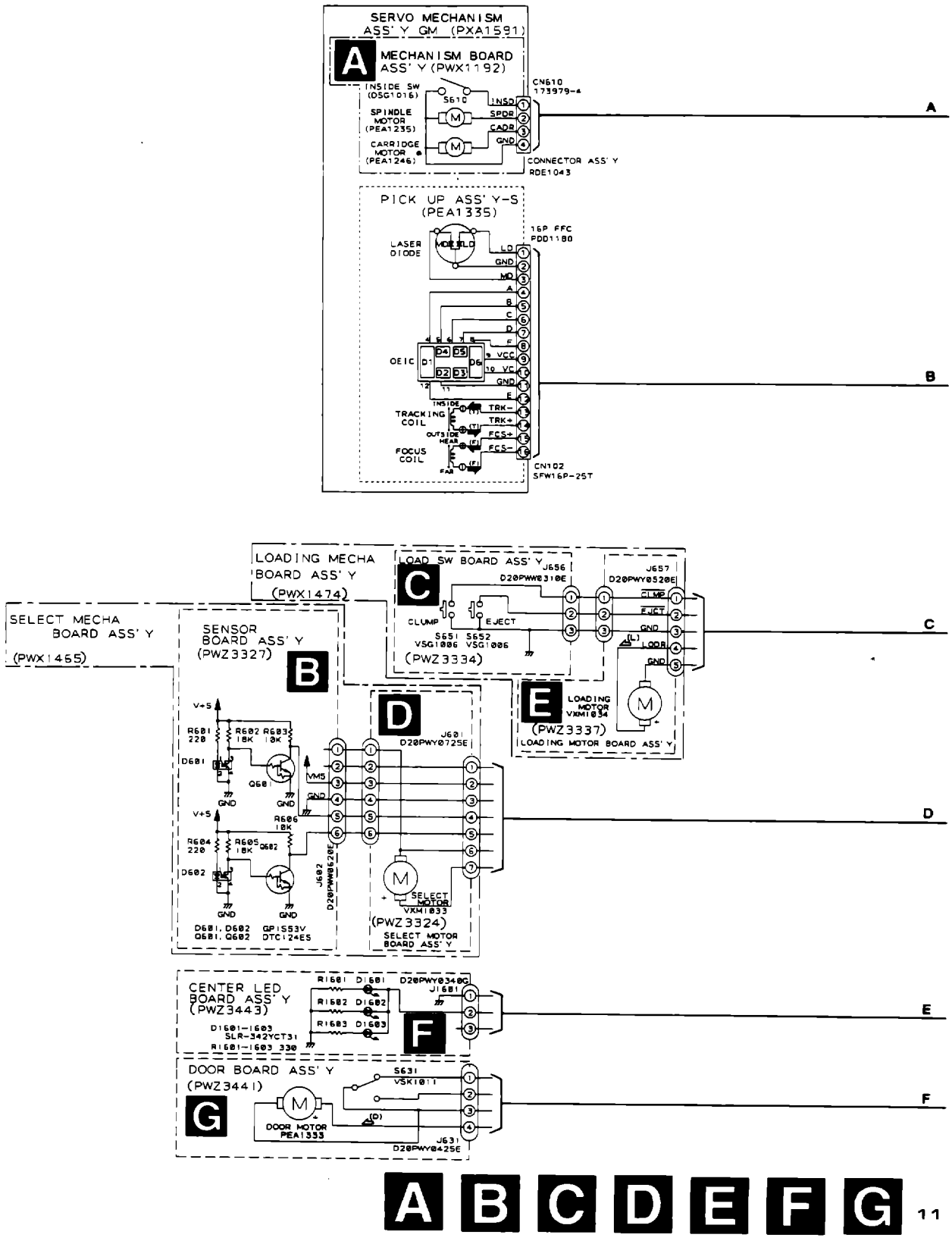
## Parts List

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | 1 | Gear 1 | PNW2052 |
| | 2 | Gear 2 | PNW2053 |
| | 3 | Gear 3 | PNW2054 |
| | 4 | Carriage Base | PNW2699 |
| | 5 | Pickup Assy – S | PEA1335 |
| | 6 | D.C. Motor Assy (SPINDLE) | PEA1235 |
| | 7 | Carriage DC Motor Assy | PEA1246 |
| | 8 | Pinion Gear | PNW2055 |
| NSP | 9 | Carriage DC Motor/0.3W | PXM1027 |
| | 10 | Disc Table Assy | PEA1314 |
| | 11 | Mechanism Board Assy | PWX1192 |
| | 12 | Guide Bar | PLA1094 |
| | 13 | ..... | |
| | 14 | Screw | JFZ17P025FZK |
| | 15 | Screw | JFZ20P040FMC |
| | 16 | Washer | WT12D032D025 |
| | 17 | Clamp Magnet | PMF1014 |
| | 18 | Yoke M | PNB1312 |
| NSP | 19 | Disc Table | PNW2410 |
| NSP | 20 | Float Angle | ANB7020 |
| | 21 | Gear Stopper | PNB1303 |
| | 22 | Screw | BPZ20P060FMC |
| | 23 | Screw | BPZ26P100FMC |
| | 24 | PU Rack Spring | ABH7077 |
| | 25 | Rack Holder | PNW2056 |

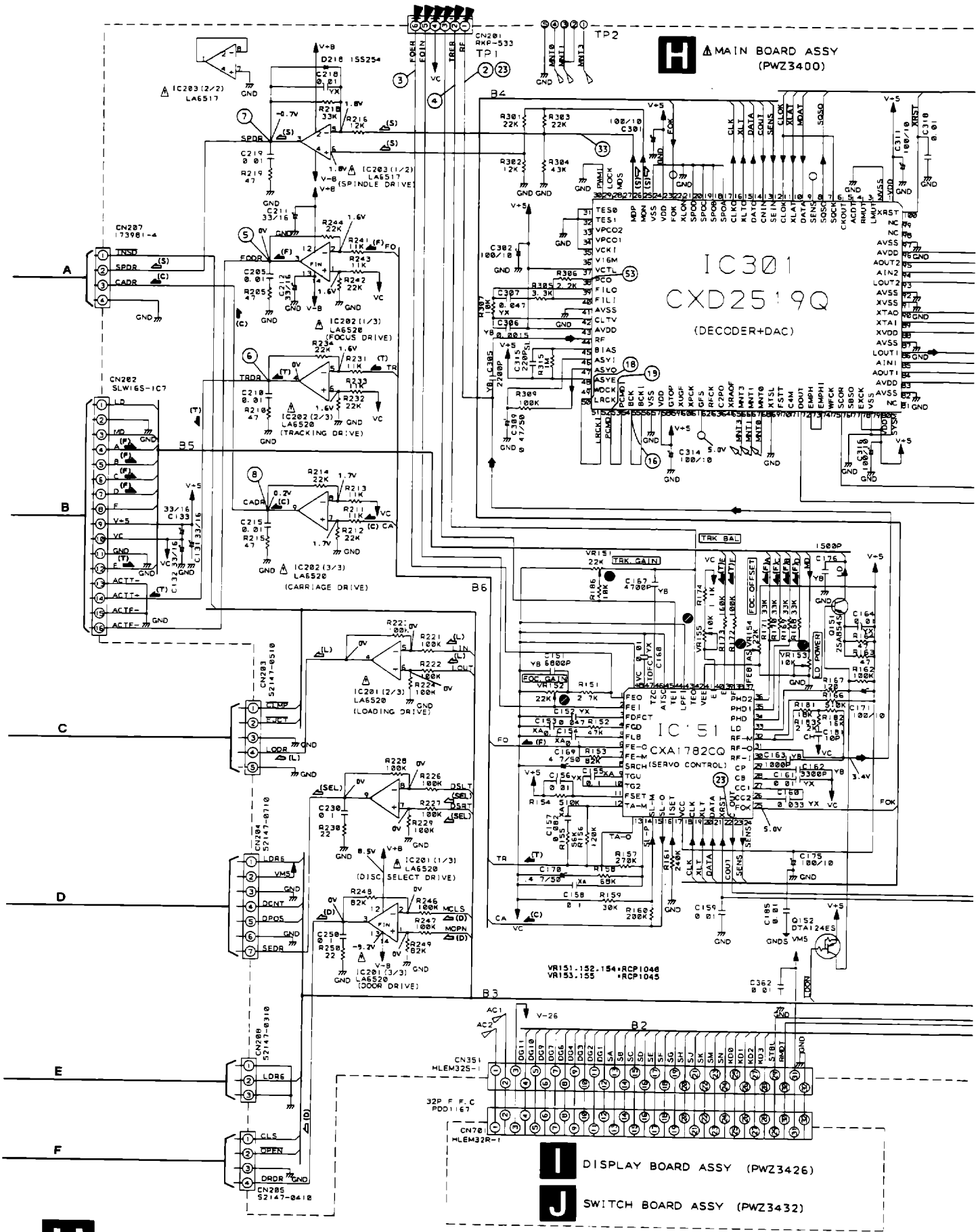
# 3. SCHEMATIC DIAGRAM

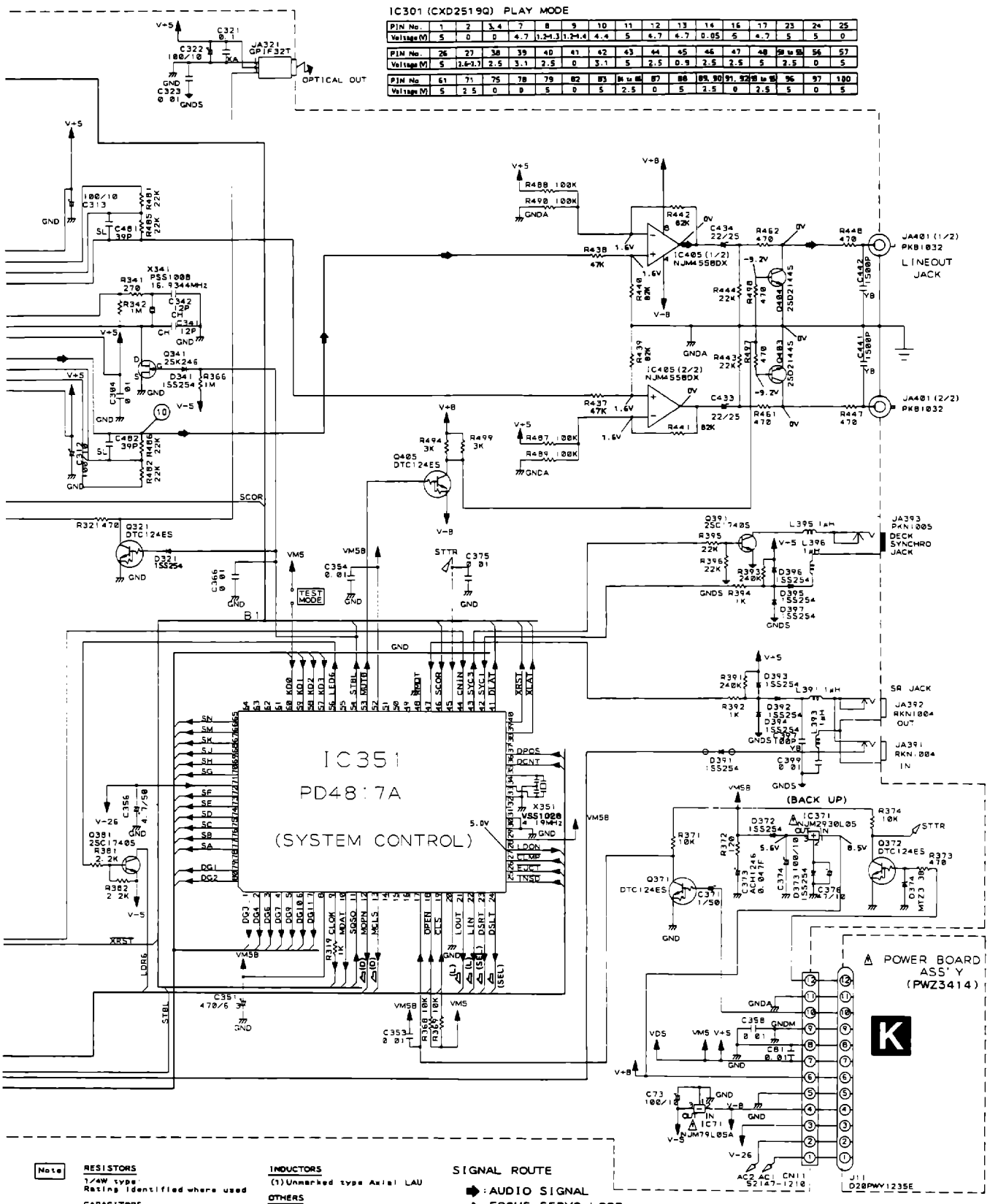
Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST"

## 3.1 MECHANISM BOARD ASSY, SENSOR BOARD ASSY, LOAD SW BOARD ASSY, SELECT MOTOR BOARD ASSY, LOADING MOTOR BOARD ASSY, CENTER LED BOARD ASSY, DOOR BOARD ASSY AND PICK UP ASSY



## 3.2 MAIN BOARD ASSY






Note

RESISTORS
1/4W type
Rating identified where used

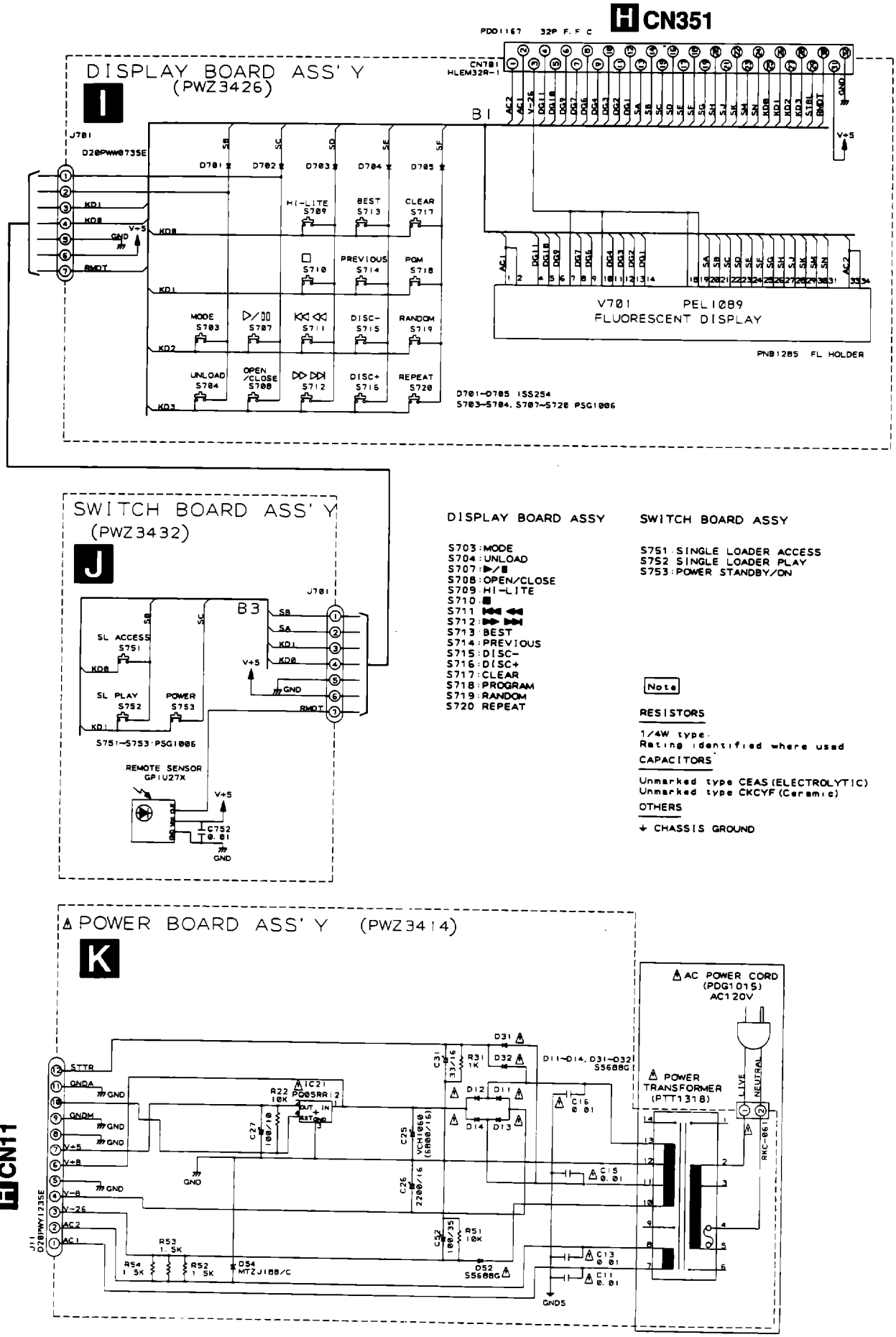
CAPACITORS
(1) YB: Ceramic CKCYB
(2) CH: Ceramic CGCCH
(3) YK Ceramic CQCYX
(4) SL: Ceramic CCCSL
(5) YA: Film CFTYA
(6) XA: Film CFTXA
(7) M-Mylar CQMA
(8) Unmarked type CKCYF(Ceramic)
(9) Unmarked type CEAS(ELECTROLYTIC)

INDUCTORS
(1) Unmarked type Axial LAU

OTHERS
: CHASSIS GROUND
ABC : LOW ACTIVE SIGNAL

SIGNAL ROUTE
: AUDIO SIGNAL

## 3.3 DISPLAY BOARD ASSY, SWITCH BOARD ASSY AND POWER BOARD ASSY




DISPLAY BOARD ASSY

S703 : MODE
S704 : UNLOAD
S707 : ▶/■
S708 : OPEN/CLOSE
S709 : HI-LITE
S710 : ■
S711 : ⏮ ◀◀
S712 : ▶▶ ⏭
S713 : BEST
S714 : PREVIOUS
S715 : DISC-
S716 : DISC+
S717 : CLEAR
S718 : PROGRAM
S719 : RANDOM
S720 : REPEAT

SWITCH BOARD ASSY

S751 : SINGLE LOADER ACCESS
S752 : SINGLE LOADER PLAY
S753 : POWER STANDBY/ON

Note

RESISTORS

1/4W type.
Rating identified where used

CAPACITORS

Unmarked type CEAS (ELECTROLYTIC)
Unmarked type CKCYF (Ceramic)

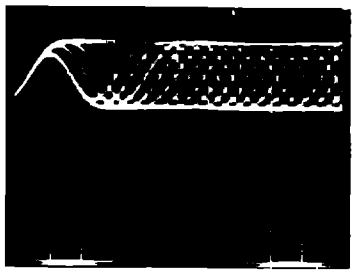
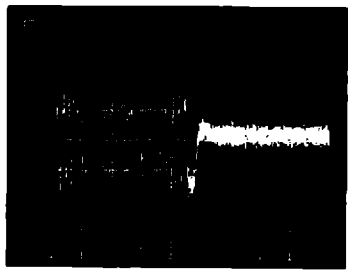
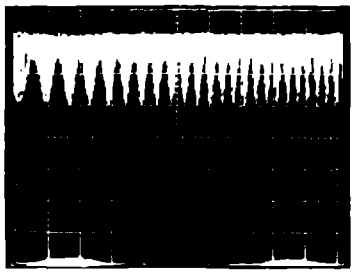
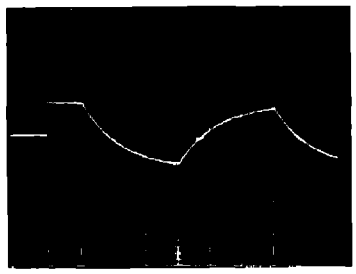
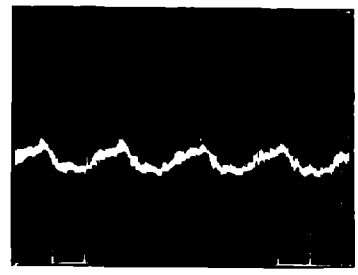
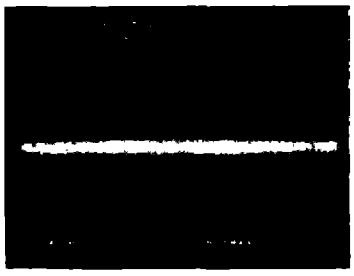
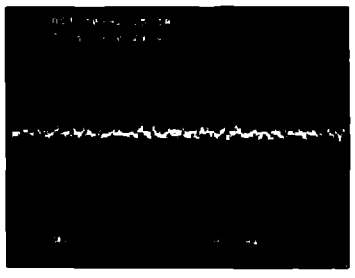
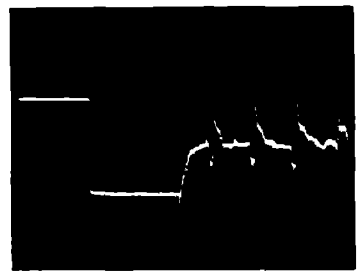
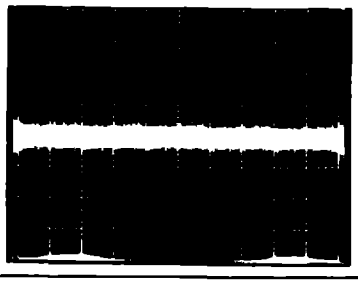
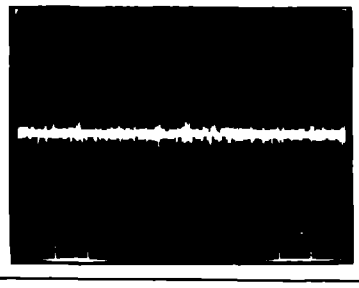
OTHERS

⏚ CHASSIS GROUND

## Waveforms

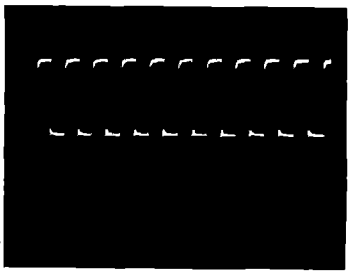
*Note : The encircled numbers denote measuring points in the schematic diagram.*

*1 50T-JUMP : After switching to the pause mode, press the manual search key.
*2 FOCUS-IN : Press the key without loading a disc.

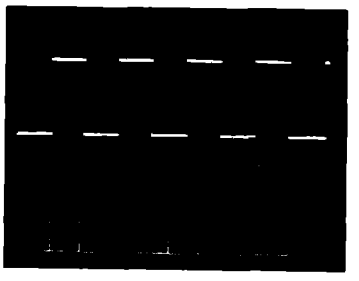
| | | |
|---|---|---|
| ② TP1-Pin 1 : PLAY MODE (RF)<br>500mV/div 500nsec/div<br>  <br>– VC | ④ TP1-Pin 2 : 50T - JUMP (*1) MODE (TRER)<br>200mV/div 1msec/div<br>  <br>– VC | ⑥ IC202-Pin 4 : 50T - JUMP (*1) MODE (TRDR)<br>500mV/div 1msec/div<br> <br>– GND |
| ② TP1-Pin 1 : TRACK SEARCH MODE (RF)<br>500mV/div 200µsec/div<br>  <br>– VC | ⑤ IC202-Pin 3 : FOCUS-IN(*2) MODE (FODR)<br>1V/div 200msec/div<br>  <br>– GND | ⑦ IC203-Pin 3 : PLAY MODE (SPDR)<br>1V/div 50msec/div<br>  <br>– GND |
| ③ TP1-Pin 6 : PLAY MODE (FOER)<br>100mV/div 10msec/div<br>  <br>– VC | ⑤ IC202-Pin 3 : PLAY MODE (FODR)<br>1V/div 1msec/div<br>  <br>– GND | ⑦ IC203-Pin 3 : TRACK SEARCH MODE (SPDR)<br>2V/div 50msec/div<br>  <br>– GND |
| ④ TP1-Pin 2 : PLAY MODE (TRER)<br>200mV/div 1msec/div<br>  <br>– VC | ⑥ IC202-Pin 4 : PLAY MODE (TRDR)<br>500mV/div 1msec/div<br>  <br>– GND | ⑧ IC202-Pin 9 : PLAY MODE (CADR)<br>0.2V/div 2sec/div<br> <br>– GND |

⑧ IC202-Pin 9 : TRACK SEARCH MODE (CADR)
2V/div 200msec/div

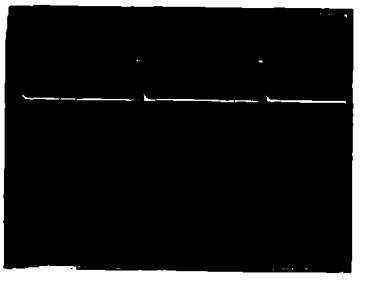
⑯ IC301-Pin 54 : PLAY MODE (1kHz) (BCK)
2V/div 500nsec/div



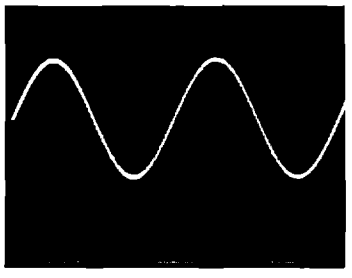

⑱ IC301-Pin 50 : PLAY MODE (1kHz) (LRCK)
2V/div 10µsec/div



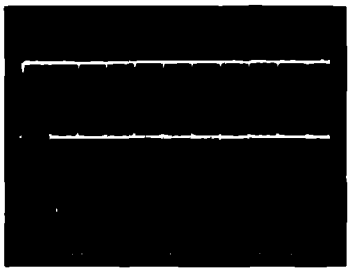

㉝ IC301-Pin 27 : PLAY MODE (MDP)
2V/div 2µsec/div



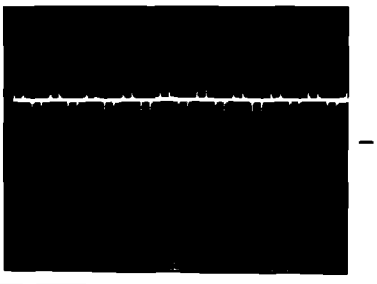

⑩ IC301-Pin 86 : PLAY MODE (1kHz) (LOUT 1)
1V/div 200µsec/div



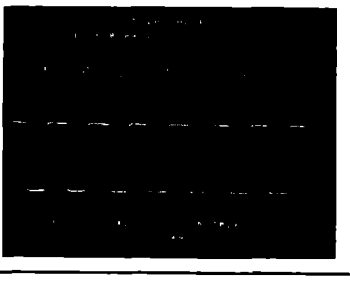

⑲ IC301-Pin 52 : PLAY MODE (1kHz) (PCMD)
2V/div 500nsec/div




㊸ IC301-Pin 38 : PLAY MODE (PCO)
2V/div 10µsec/div

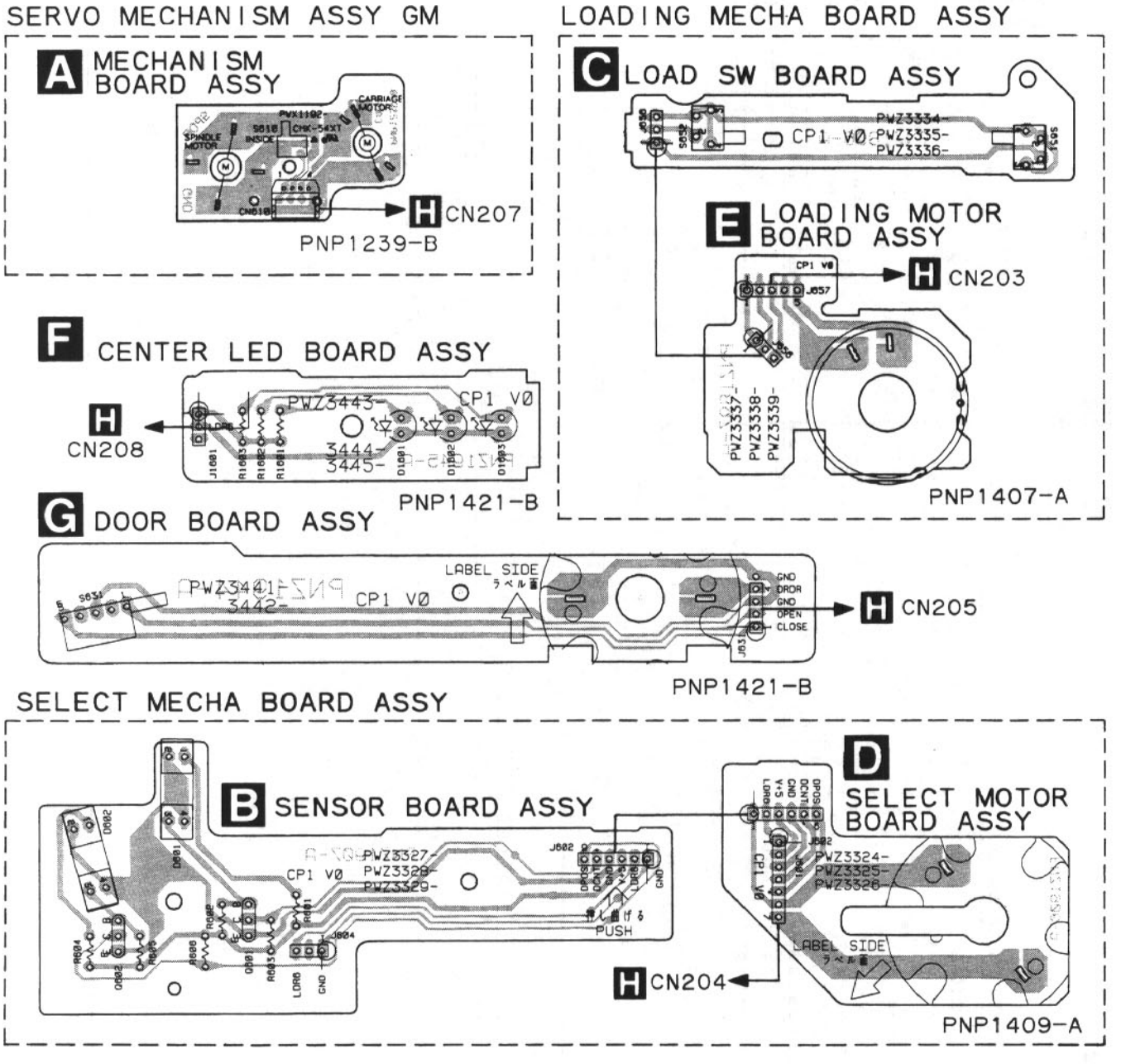



㉓ : TRACK SEARCH MODE
Upper: TP1-Pin1 (RF) 1V/div
Lower: IC151-Pin23 (C.OUT)
2V/div 50µsec/div



# 4. PCB CONNECTION DIAGRAM

## 4.1 MECHANISM BOARD ASSY, SENSOR BOARD ASSY, LOAD SW BOARD ASSY, SELECT MOTOR BOARD ASSY, LOADING MOTOR BOARD ASSY, CENTER LED BOARD ASSY AND DOOR BOARD ASSY

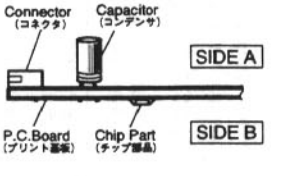



**NOTE FOR PCB DIAGRAMS**

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

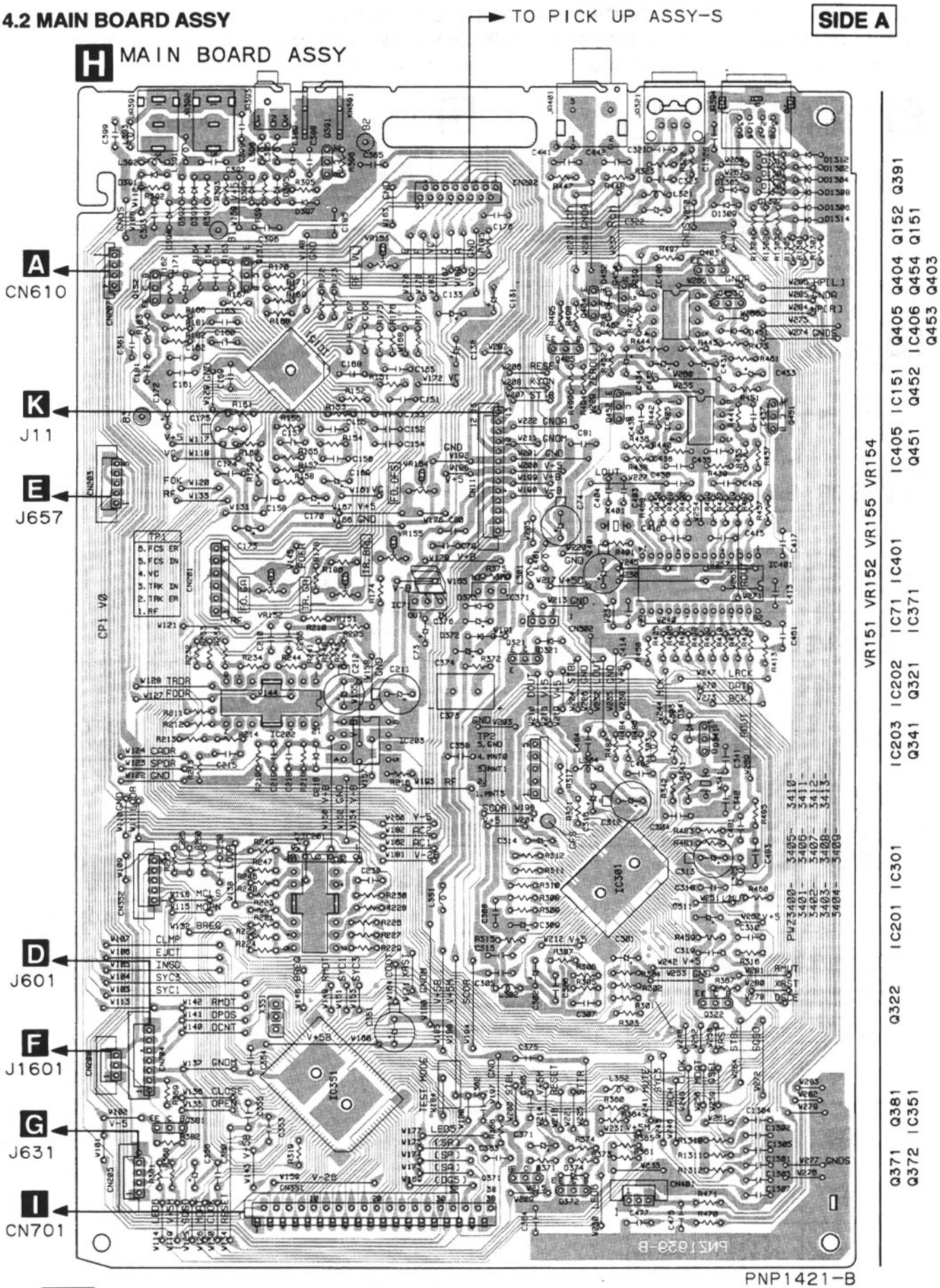
| Symbol in PCB Diagrams | Symbol in Schematic Diagrams | Part Name |
|---|---|---|
| B C E | B C E B C E | Transistor |
| B C E | B C E B C E | Transistor with resistor |
| D G S | D G S D G S | Field effect transistor |
| | | Resistor array |
| | | 3-terminal regulator |

3. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respecitve destinations, be sure to check with the schematic diagram.
4. Viewpoint of PCB diagrams

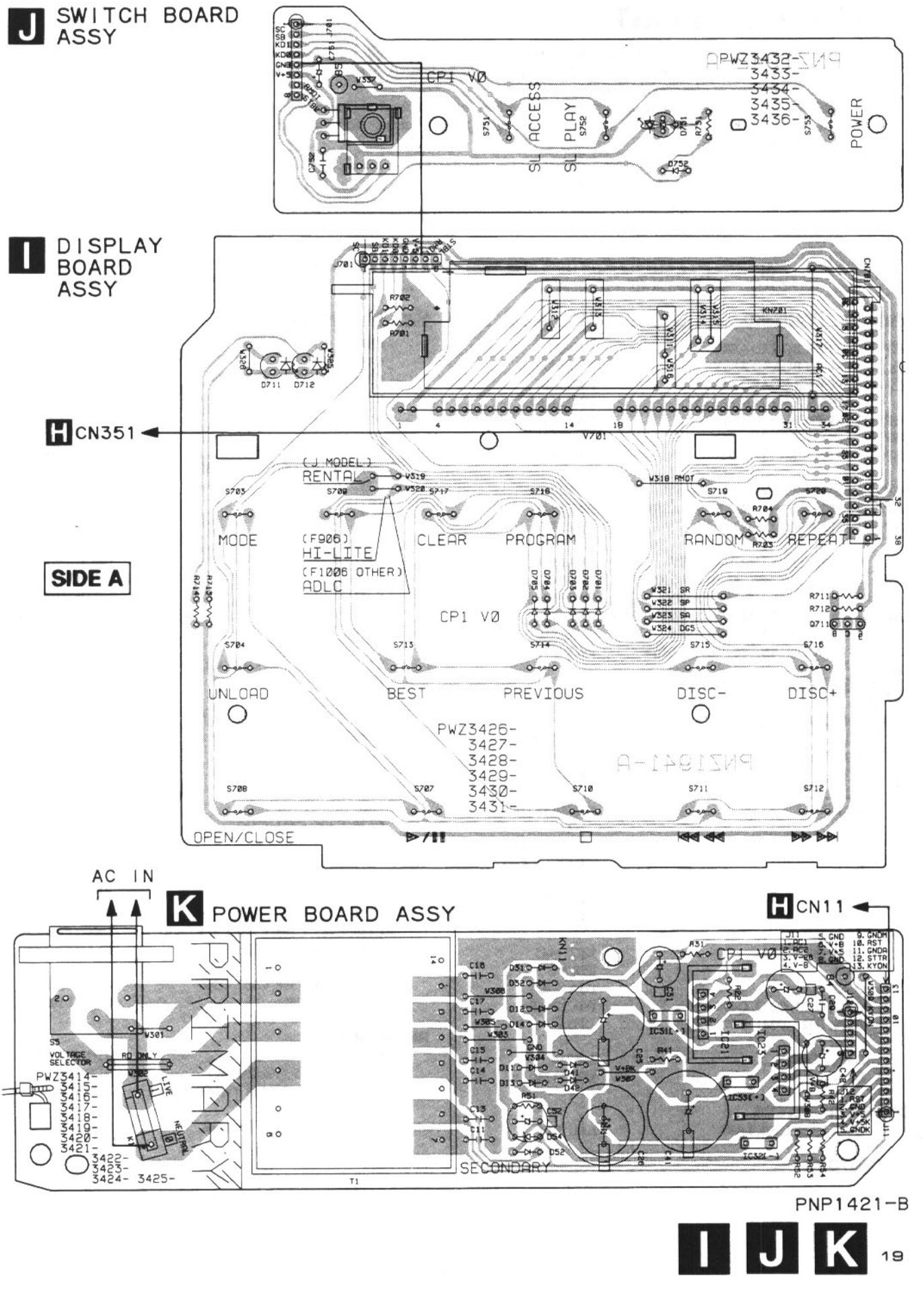



SIDE A

## 4.2 MAIN BOARD ASSY



## 4.3 DISPLAY BOARD ASSY, SWITCH BOARD ASSY AND POWER BOARD ASSY



# 5. PCB PARTS LIST

*NOTES:*
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

| | | | | |
|---|---|---|---|---|
| *560Ω* | → | *56 × 10¹* | → *561* ..... | *RD1/4PU561J* |
| *47kΩ* | → | *47 × 10³* | → *473* ..... | *RD1/4PU473J* |
| *0.5Ω* | → | *R50* ..... | | *RN2HR50K* |
| *1Ω* | → | *1R0* ..... | | *RS1P1R0K* |

*Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62kΩ → 562 × 10¹ → 5621* ..... *RN1/4PC5621F*

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| NSP | | MOTHER BOARD ASSY | PWM2119 |
| ⚠ | | ├ MAIN BOARD ASSY | PWZ3400 |
| ⚠ | | ├ POWER BOARD ASSY | PWZ3414 |
| | | ├ DISPLAY BOARD ASSY | PWZ3426 |
| NSP | | ├ SWITCH BOARD ASSY | PWZ3432 |
| NSP | | ├ DOOR BOARD ASSY | PWZ3441 |
| NSP | | └ CENTER LED ASSY | PWZ3443 |
| NSP | | SELECT MECHA BOARD ASSY | PWX1465 |
| NSP | | ├ SELECT MOTOR BOARD ASSY | PWZ3324 |
| NSP | | └ SENSOR BOARD ASSY | PWZ3327 |
| | | LOADING MECHANISM ASSY | PXA1589 |
| NSP | | ├ LOADING MECHA BOARD ASSY | PWX1474 |
| NSP | | │ ├ LOAD SW BOARD ASSY | PWZ3334 |
| NSP | | │ └ LOADING MOTOR BOARD ASSY | PWZ3337 |
| NSP | | └ SERVO MECHANISM ASSY | PXA1591 |
| | | └ MECHANISM BOARD ASSY | PWX1192 |

## H MAIN BOARD ASSY

### SEMICONDUCTORS

| Mark | No. | Parts No. |
|---|---|---|
| | IC151 | CXA1782CQ |
| | IC301 | CXD2519Q |
| ⚠ | IC203 | LA6517 |
| ⚠ | IC201, IC202 | LA6520 |
| ⚠ | IC371 | NJM2930L05 |
| | IC405 | NJM4558DX |
| ⚠ | IC71 | NJM79L05A |
| | IC351 | PD4817A |
| | Q151 | 2SA854S |
| | Q381, Q391 | 2SC1740S |
| | Q403, Q404 | 2SD2144S |
| | Q341 | 2SK246 |
| | Q152 | DTA124ES |
| | Q321, Q371, Q372, Q405 | DTC124ES |
| | D218, D321, D341, D372, D373 | 1SS254 |
| | D391 – D397 | 1SS254 |
| | D374 | MTZJ3.3B |

### COILS AND FILTERS

| Mark | No. | Parts No. |
|---|---|---|
| | L391, L393, L395, L396 | LAU1R0J |

### CAPACITORS

| Mark | No. | Parts No. |
|---|---|---|
| | C373 | ACH1246 |
| | C181 | CCCCH100D50 |
| | C341, C342 | CCCCH120J50 |
| | C315 | CCCSL221J50 |
| | C481, C482 | CCCSL390J50 |
| | C171, C175, C301, C302 | CEAS101M10 |
| | C311 – C314, C316, C322, C374 | CEAS101M10 |
| | C73 | CEAS101M10 |
| | C371 | CEAS1R0M50 |
| | C433, C434 | CEAS220M25 |
| | C131 – C133, C211, C212 | CEAS330M16 |
| | C376 | CEAS470M10 |
| | C351 | CEAS471M6R3 |
| | C169, C170, C356 | CEAS4R7M50 |
| | C309 | CEASR47M50 |
| | C153 – C155, C158, C230, C250 | CFTXA104J50 |
| | C321 | CFTXA104J50 |
| | C157 | CFTXA823J50 |
| | C156, C161, C164, C168, C218 | CGCYX103K25 |
| | C160 | CGCYX333K25 |
| | C152, C307 | CGCYX473K25 |
| | C397 | CKCYB101K50 |
| | C163 | CKCYB102K50 |
| | C176, C306, C441, C442 | CKCYB152K50 |
| | C305 | CKCYB222K50 |
| | C162 | CKCYB332K50 |
| | C167 | CKCYB472K50 |
| | C151 | CKCYB682K50 |
| | C159, C185, C205, C210, C215 | CKCYF103Z50 |
| | C219, C304, C318, C323 | CKCYF103Z50 |
| | C353, C354, C358, C362, C366 | CKCYF103Z50 |
| | C375, C399, C81 | CKCYF103Z50 |

### RESISTORS

| Mark | No. | Parts No. |
|---|---|---|
| | R157 | RD1/4VM274J |
| | VR153, VR155 (10kΩ/0.1W) | RCP1045 |
| | VR151, VR152, VR154 (22kΩ/0.1W) | RCP1046 |
| | Other Resistors | RD1/4PU□□□J |

### OTHERS

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | CN207 | MT 4P CONNECTOR | 173981 – 4 |
| | CN208 | 3P JUMPER CONNECTOR | 52147 – 0310 |
| | CN205 | 4P JUMPER CONNECTOR | 52147 – 0410 |
| | CN203 | 5P JUMPER CONNECTOR | 52147 – 0510 |
| | CN204 | 7P JUMPER CONNECTOR | 52147 – 0710 |
| | CN11 | 12PJUMPER CONNECTOR | 52147 – 1210 |
| | JA321 | OPTICAL LINK OUT | GP1F32T |
| | CN351 | CONNECTOR | HLEM32S – 1 |
| | JA401 | JACK | PKB1032 |
| | JA393 | JACK | PKN1005 |
| | X341 | XTAL RES (OSC)(16.9344MHz) | PSS1008 |
| | JA391, JA392 | JACK | RKN1004 |
| | CN201 | CONNECTOR 6P | RKP – 533 |
| | CN202 | CONNECTOR | SLW16S – 1C7 |
| | | SCREW PLATE | VNE1948 |
| | X351 | CERAMIC RESONATOR(4.19MHz) | VSS1028 |

## K POWER BOARD ASSY

### SEMICONDUCTORS

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| ⚠ | IC21 | | PQ05RR12 |
| | D54 | | MTZJ18B/C |
| ⚠ | D11 – D14, D31, D32, D52 | | S5688G |

### CAPACITORS

| No. | Description | Parts No. |
|---|---|---|
| C27 | | CEAS101M10 |
| C52 | | CEAS101M35 |
| C26 | | CEAS222M16 |
| C31 | | CEAS330M16 |
| C11, C13, C15, C16 | | CKCYF103Z50 |
| C25 | (6800μF 16V) | VCH1060 |

### RESISTORS

| | Description | Parts No. |
|---|---|---|
| | Other Resistors | RD1/4PU□□□J |

### OTHERS

| Mark | | Description | Parts No. |
|---|---|---|---|
| ⚠ | | POWER TRANSFOMER | PTT1318 |
| ⚠ | | TERMINAL | RKC – 061 |

## I DISPLAY BOARD ASSY

### SEMICONDUCTORS

| No. | Parts No. |
|---|---|
| D701 – D705 | 1SS254 |

### SWITCHES AND RELAYS

| No. | Parts No. |
|---|---|
| S703, S704, S707 – S720 | PSG1006 |

### OTHERS

| No. | Description | Parts No. |
|---|---|---|
| CN701 | CONNECTOR | HLEM32R – 1 |
| V701 | FL INDICATOR TUBE | PEL1089 |

## J SWITCH BOARD ASSY

### SWITCHES AND RELAYS

| No. | Parts No. |
|---|---|
| S751 – S753 | PSG1006 |

### CAPACITORS

| No. | Parts No. |
|---|---|
| C752 | CKCYF103Z50 |

### OTHERS

| Mark | No. | Description | Parts No. |
|---|---|---|---|
| | | REMOTE RECEIVER UNIT | GP1U27X |

## G DOOR BOARD ASSY

### OTHERS

| No. | Description | Parts No. |
|---|---|---|
| | REAF SWITCH | VSK1011 |

## F CENTER LED ASSY

### SEMICONDUCTORS

| No. | Parts No. |
|---|---|
| D1601 – D1603 | SLR – 342YCT31 |

### RESISTORS

| | Description | Parts No. |
|---|---|---|
| | Other Resistors | RD1/4PU□□□J |

## D SELECT MOTOR BOARD ASSY

SELECT MOTOR BOARD assembly has no service part.

## B SENSOR BOARD ASSY

### SEMICONDUCTORS

| No. | Parts No. |
|---|---|
| Q601, Q602 | DTC124ES |
| D601, D602 | GP1S53V |

### RESISTORS

| | Description | Parts No. |
|---|---|---|
| | Other Resistors | RD1/4PU□□□J |

## C LOAD SW BOARD ASSY

### SWITCHES AND RELAYS

| No. | Parts No. |
|---|---|
| S651, S652 | VSG1006 |

### OTHERS

| No. | Description | Parts No. |
|---|---|---|
| J656 | 3P JUMPER WIRE | D20PWW0310E |

## E LOADING MOTOR BOARD ASSY

LOADING MOTOR BOARD assembly has no service part.

## A MECHANISM BOARD ASSY

### SWITCHES AND RELAYS

| No. | Parts No. |
|---|---|
| S610 | DSG1016 |

### OTHERS

| No. | Description | Parts No. |
|---|---|---|
| CN610 | MT 4P CONNECTOR | 173979 – 4 |

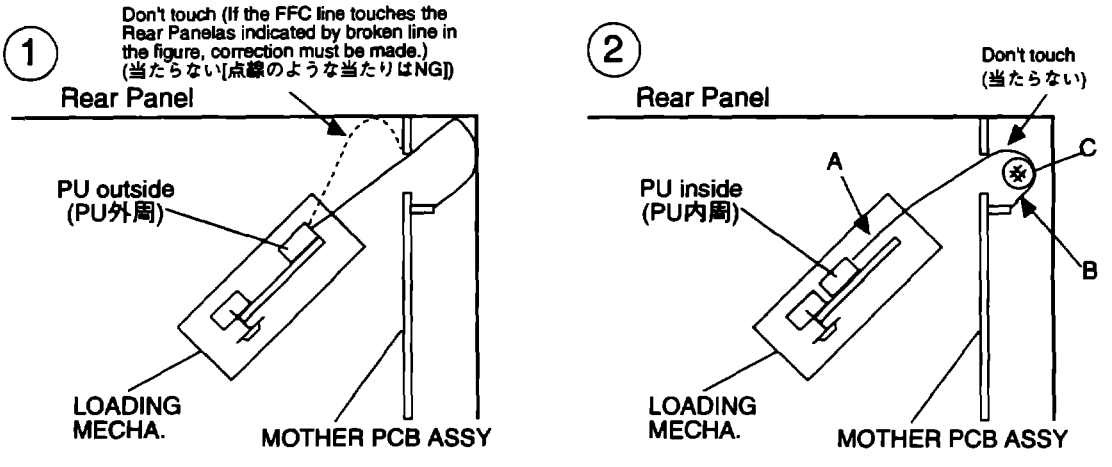
# 6. ADJUSTMENT (調整方法)

## 6.1 MECHANISM ADJUSTMENTS (機構系調整)

[Confirmation of the FFC line for pickup]
[ピックアップ用FFC線処理確認]

The following points must be confirmed before installation into the Bonnet.
ボンネット組込み前に次の確認が必要です。

As shown in the figure below, the FFC line should not : ① Touch the left side of the Rear Panel when the FFC line is at the outer circumference of the PU, or ② Touch the right side of the Rear Panel when the FFC line is at the inner circumference of the PU. (When the FFC line touches the Rear Panel in the case of ②, insert your finger at the point C shown in the figure to lightly correct the line.)
下図のように① PU外周位置でリアパネル左側に当たらない。或いは、② PU内周位置でリアパネル右側に当たらない。
(②で当たる場合は、図中C部に指を入れ、軽く補正する。)

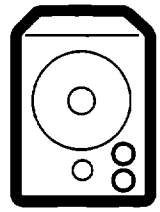
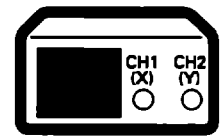
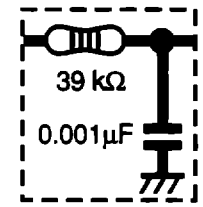
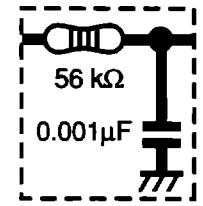



Take adequate caution when handling the FFC line. Do NOT bend the line (particularly the reinforcement made for connection between A and B, as indicated in the figure above).
また、FFCの取扱いには十分注意し、折り曲げ等(特に上図A, Bのコネクタ補強部の端)なきように注意願います。

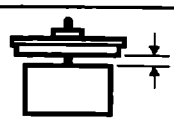
## 6.2 ELECTRIC ADJUSTMENTS (電気系調整)

### 6.2.1 PREPARATIONS (準備)

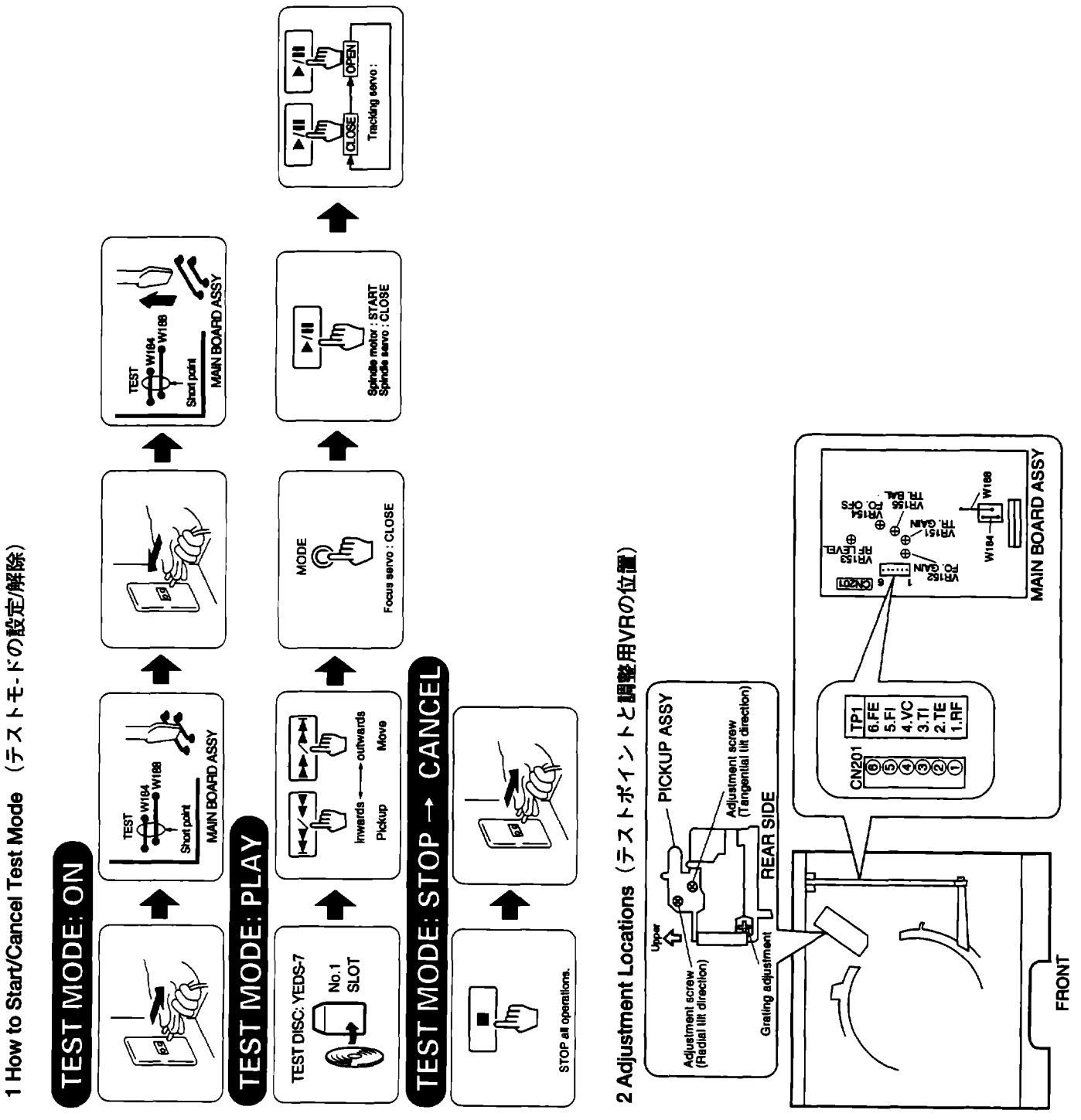
1.1 Jigs and Measuring Instruments (使用測定器/治工具類)

| | | | |
|---|---|---|---|
| CD TEST DISC (YEDS-7) | ⊖ Precise screwdriver | ⊖ screwdriver (small) | ⊕ screwdriver (medium) |
| ⊕ screwdriver (large) |  Low-frequency oscillator |   Dual-trace oscilloscope (10 : 1 probe) |   Low pass filter① (39 kΩ + 0.001μF) |
| | | |   Low pass filter② (56 kΩ + 0.001μF) |

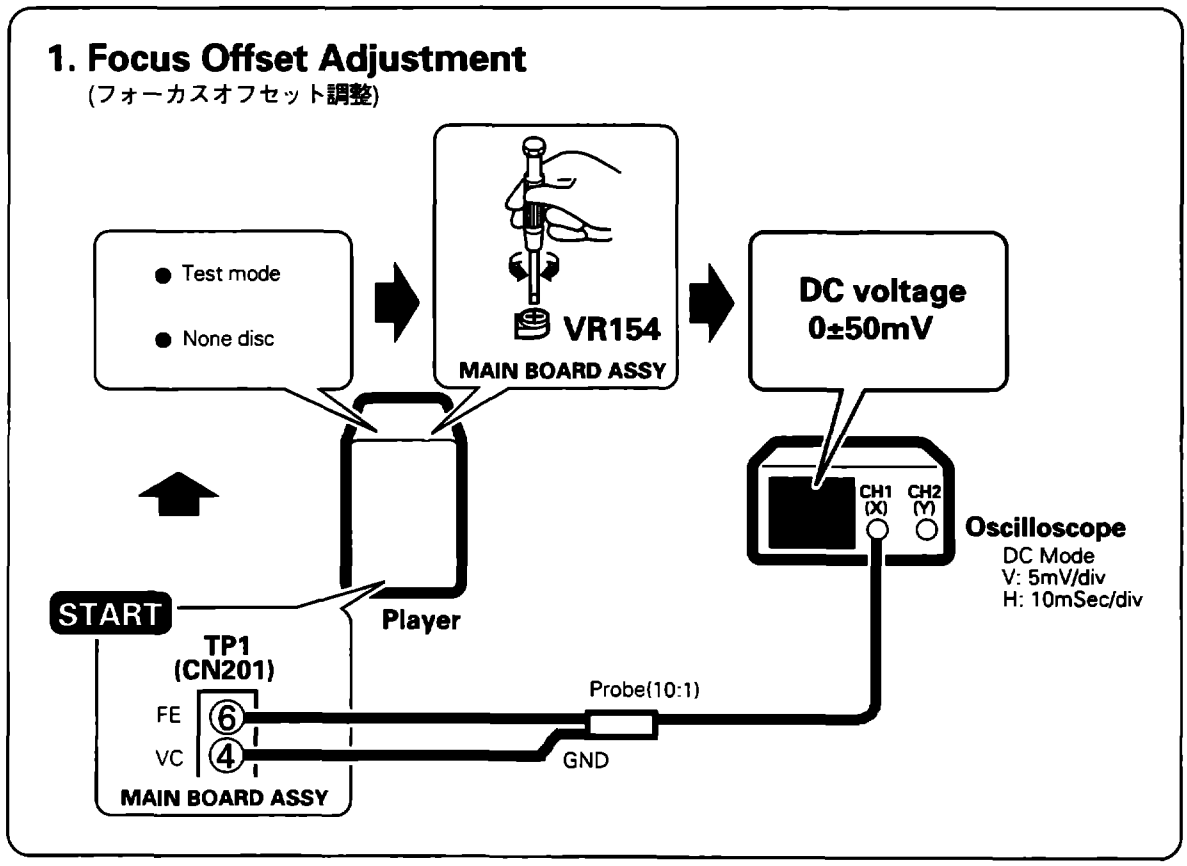
1.2 Necessary Adjustment Points (調整に必要な項目)

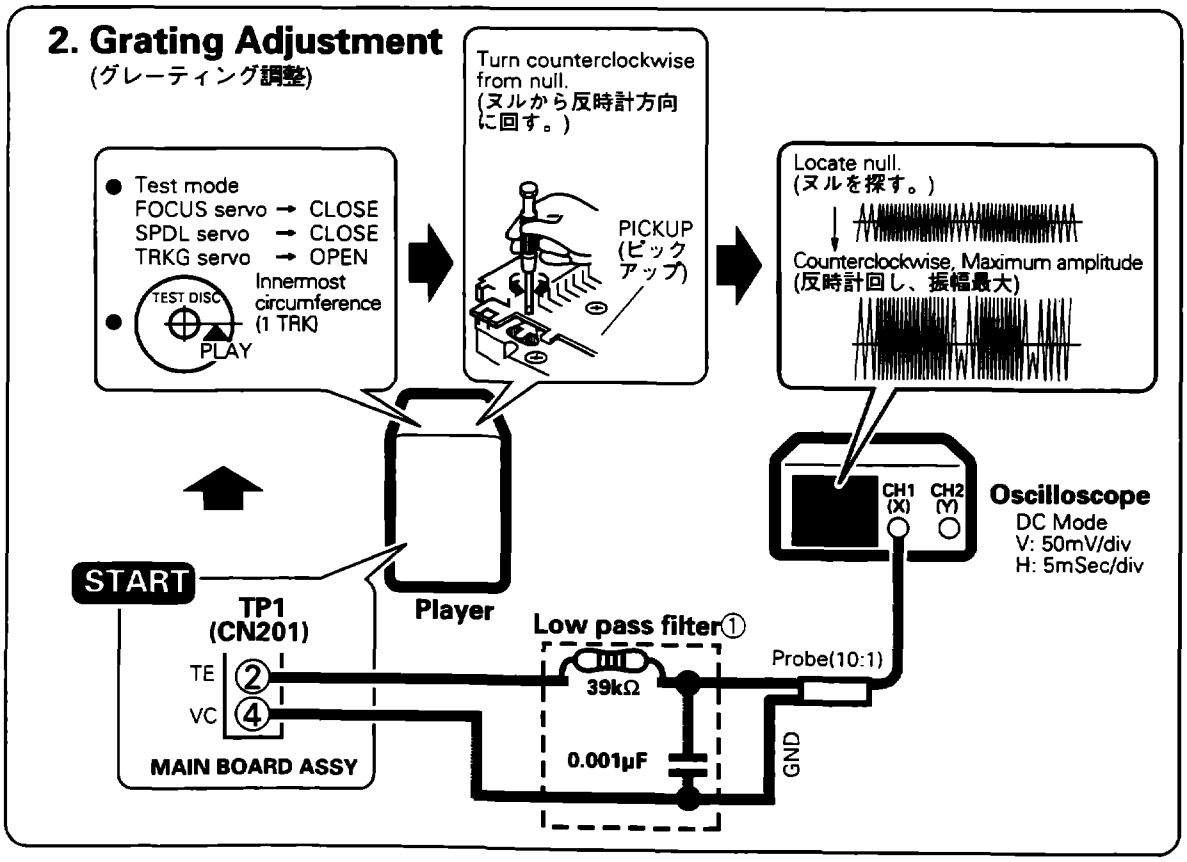
| When (このような時) | Adjustment points |
|---|---|
| Exchange PICKUP (ピックアップを交換した時) | 1.2.3.4.5.6. → Page 25~28 |
| Exchange CD ASSY (CD ASSYを交換した時) | 1.2.3.4.5.6. → Page 25~28 |
| Exchange SERVO MECH ASSY (サーボメカ ASSYを交換した時) | 1.2.3.4.5.6. → Page 25~28 |
| Exchange SPINDLE MOTOR (スピンドルモーターを交換した時) |  ADJ → Page 9 |

## 6.2.2 ADJUSTMENT (調整)

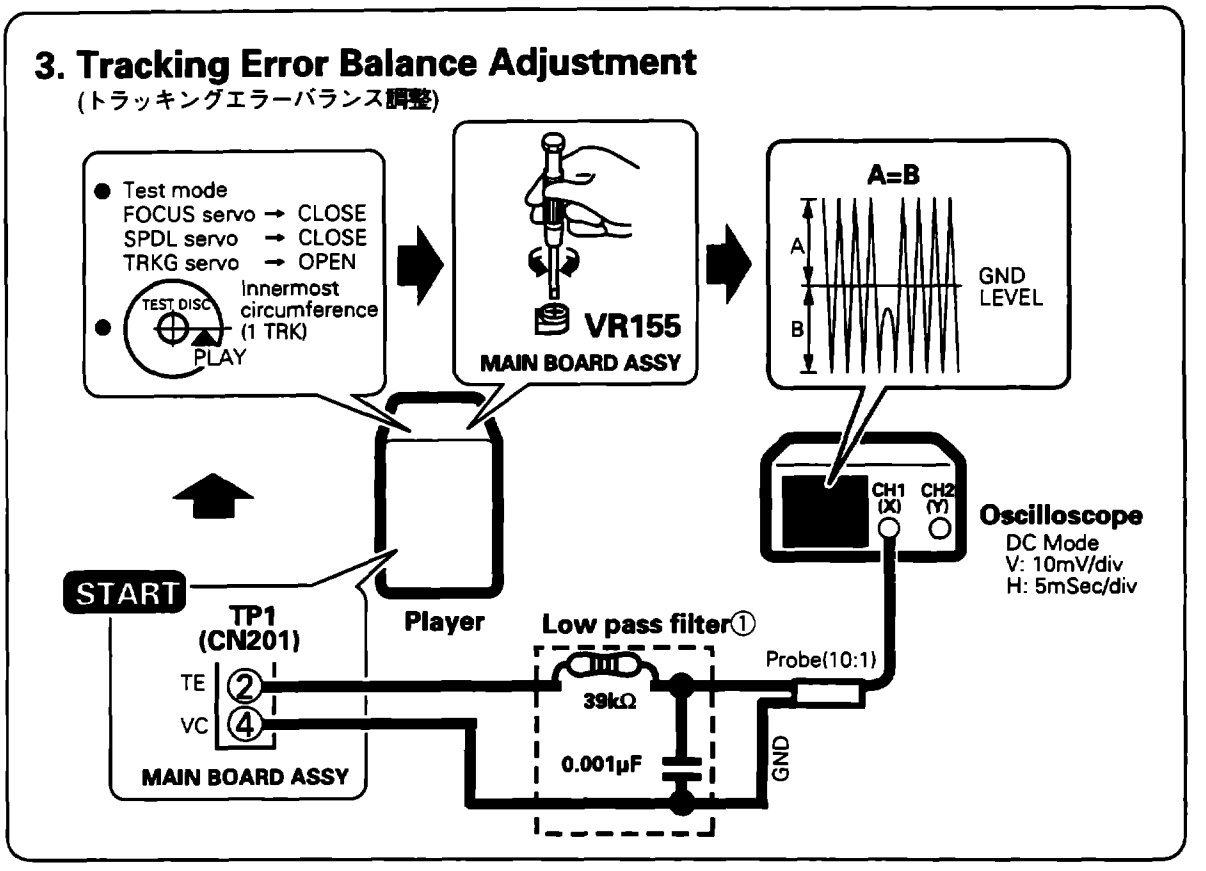


## 6.3 Check and Adjustment (確認、調整)

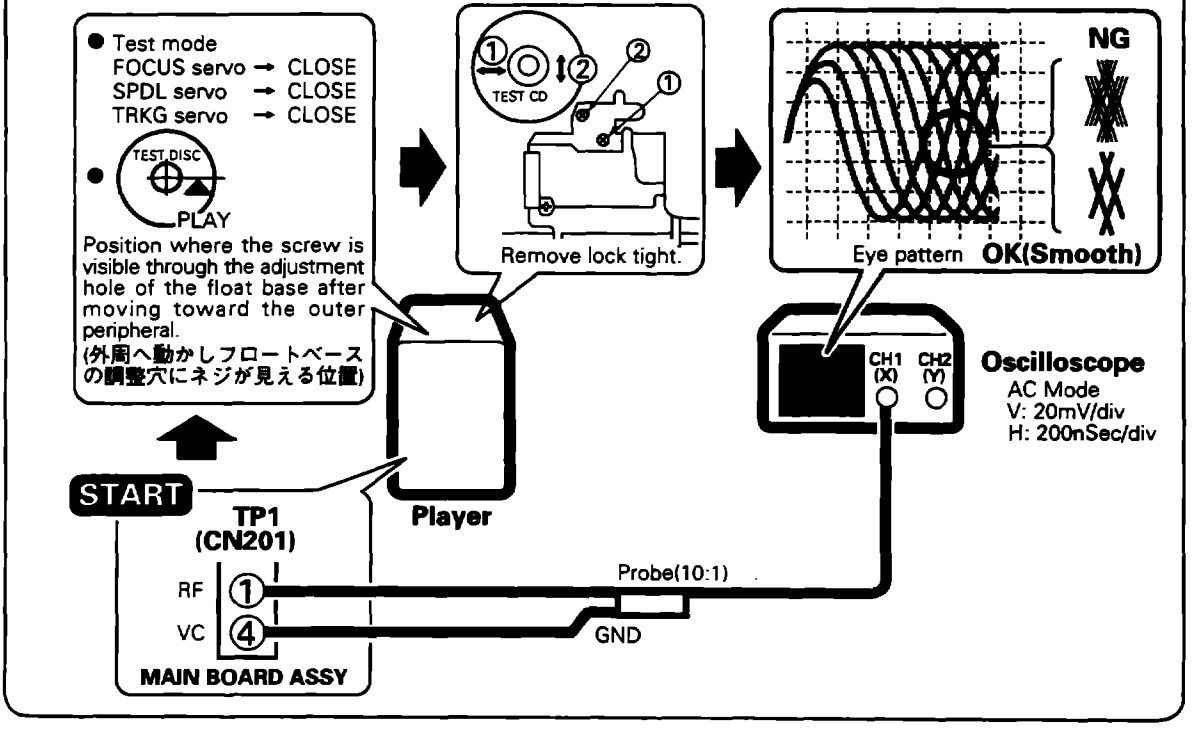


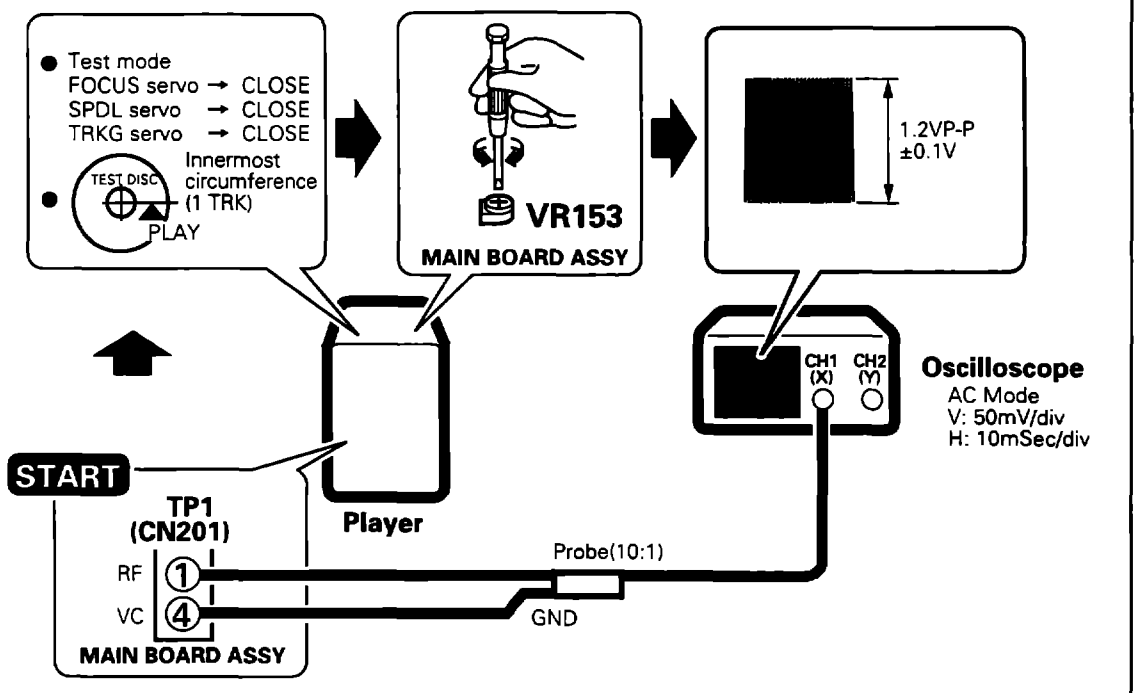
## 3. Tracking Error Balance Adjustment
(トラッキングエラーバランス調整)



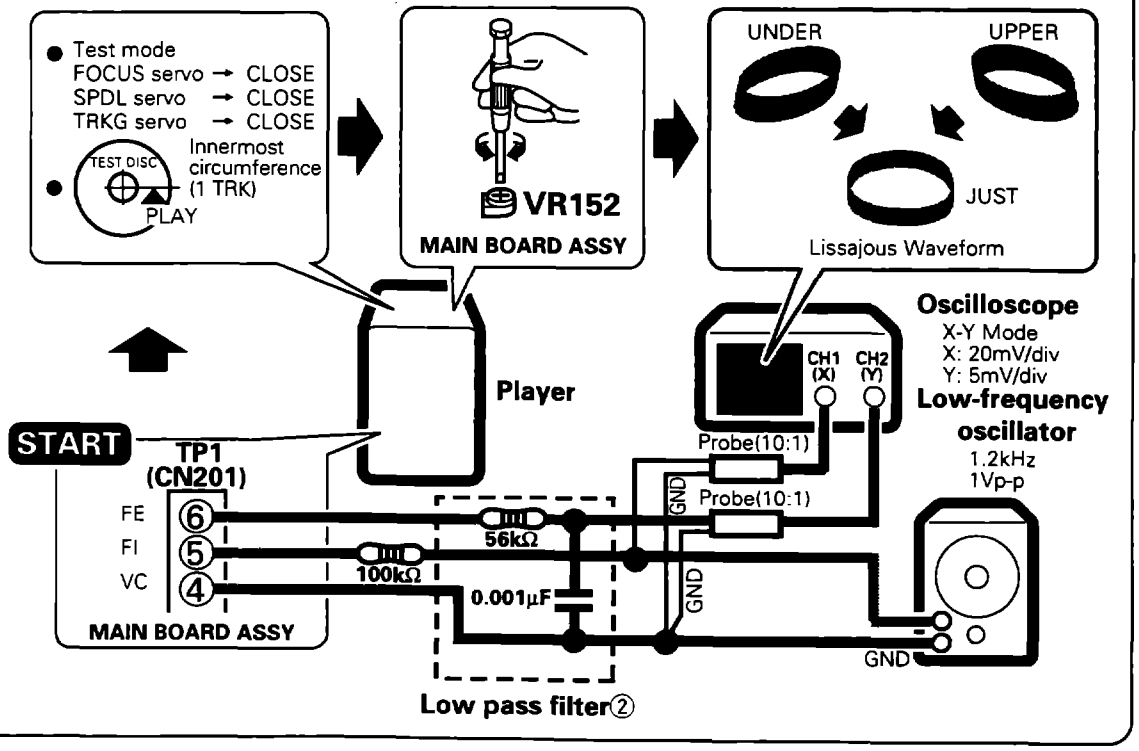

## 4. PICKUP ①RADIAL / ②TANGENTIAL DIRECTION TILT ADJUSTMENT
(ピックアップ①ラジアル方向②タンジェンシャル方向の傾き調整)



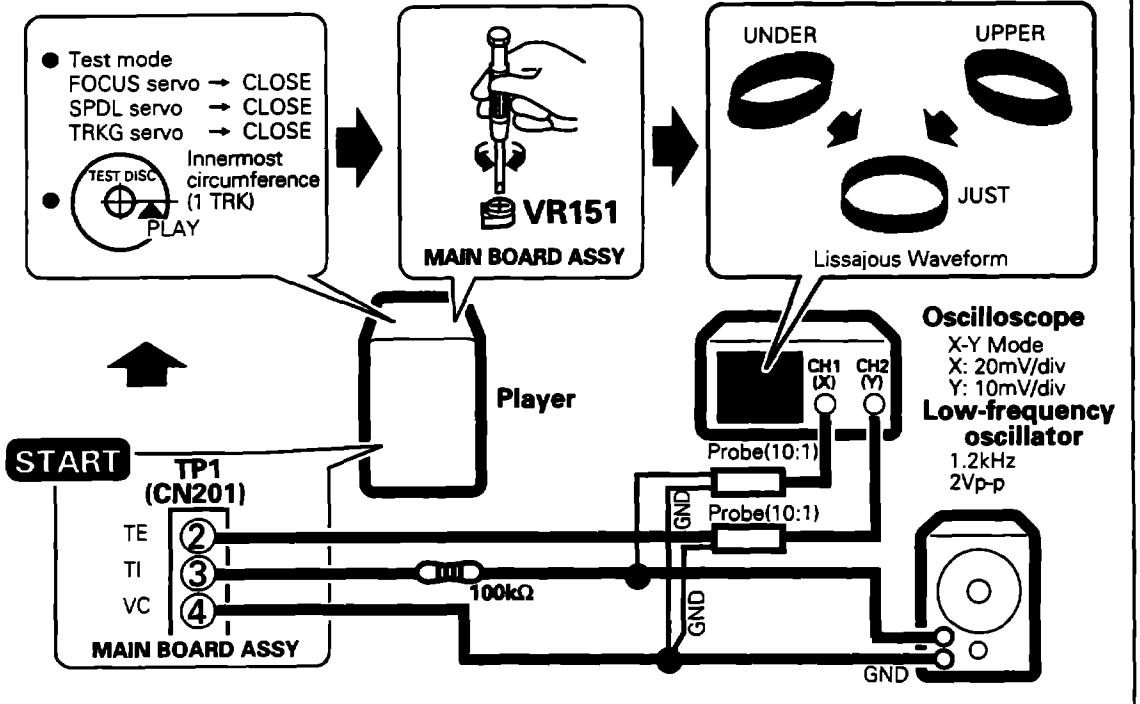
## 5. RF LEVEL ADJUSTMENT
(RFレベル調整)




## 6. Focus Servo Loop Gain Adjustment
(フォーカスサーボループゲイン調整)



## 7. Tracking Servo Loop Gain Adjustment
(トラッキングサーボループゲイン調整)



# 7. GENERAL INFORMATION

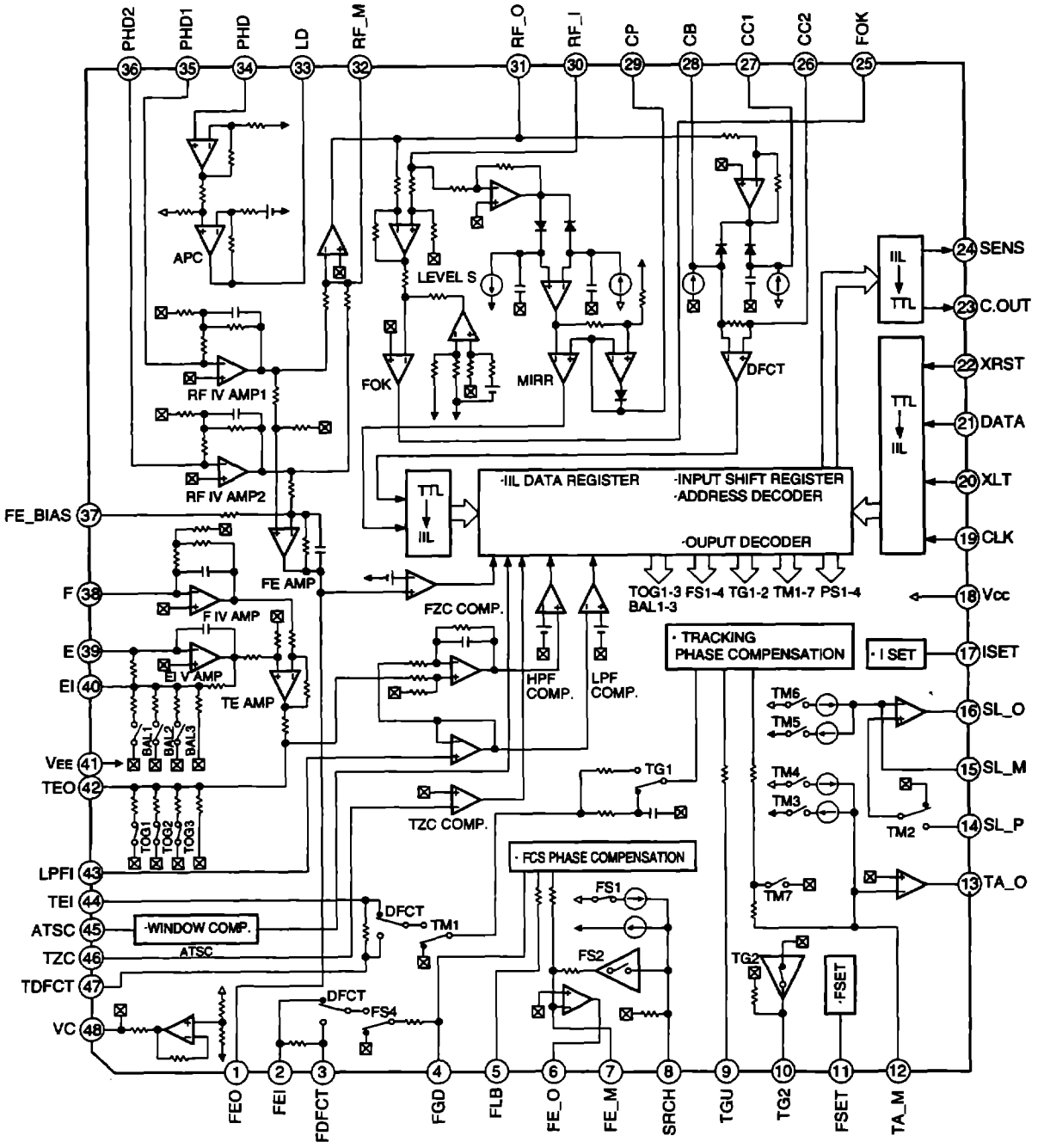
- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

## 7.1 PARTS

### 7.1.1 IC

### ■ CXA1782CQ (IC151:MAIN BOARD ASSY)

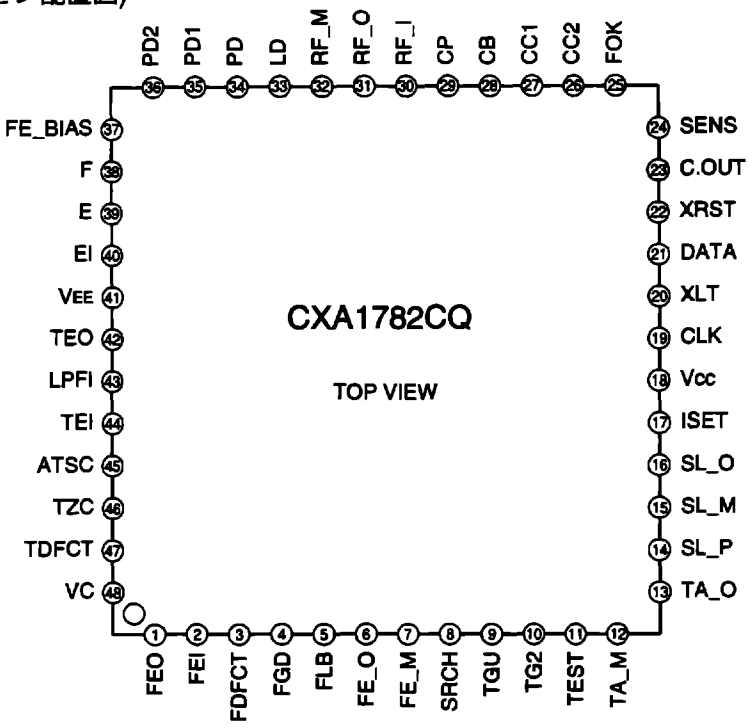
- **RF Signal Processing Servo Amplifier for CD players** (CD用RF信号処理サーボアンプ)
- **Block Diagram** (ブロックダイアグラム)




·The statuses of switches in the block diagram show when they are reset to their initial settings.
·The switch will be set to the ○ side when the value in the serial data truth table is "1" and to the ● side when the true value is "0".
·The DFCT switch is set to the ○ side if a defect signal is generated when the true value is DEFECT=E.
·The TG1 switch is set to the ○ side and the TG2 switch is set to "Open" when TG1 and TG2 (D3 of Address 1) are "1".

・ブロック図でのSWの状態はイニシャルリセット時を示します。
・シリアルデータ真理値表で1の時は○側,0の時は●側にスイッチがONします。
・DECTスイッチについては真理値DEFECT=Eの時,ディフェクト信号発生時に○側となります。
・TG1,TG2 SWはTG1,TG2 (アドレス1のD3)が"1"でTG1が○側,TG2がOpenになります。

● Pin Assignment (ピン配置図)




● Pin Function (端子機能)

CXA1782CQ

| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 1 | FEO | O | Focus error amplifier output.<br>Connected internally to the FZC comparator input. | フォーカス・エラーアンプの出力端子です。<br>内部でFZCコンパレータ入力に接続されています。 |
| 2 | FEI | I | Focus error input. | フォーカス・エラーの入力端子です。 |
| 3 | FDFCT | I | Capacitor connection pin for defect time constant. | ディフェクト時の時定数用コンデンサ接続端子です。 |
| 4 | FGD | I | Ground this pin through a capacitor when decreasing the focus servo high-frequency gain. | フォーカス・サーボの高域ゲインを落とす場合,この端子をコンデンサで接地します。 |
| 5 | FLB | I | External time constant setting pin for increasing the focus servo low-frequency. | フォーカス・サーボの低域持ち上げ用時定数外付け端子です。 |
| 6 | FE_O | O | Focus drive output. | フォーカスドライブ出力です。 |
| 7 | FE_M | I | Focus amplifier inverted input. | フォーカス・アンプの反転入力端子です。 |
| 8 | SRCH | I | External time constant setting pin for generating focus servo waveform. | フォーカス・サーチ波形を作るための時定数外付け端子です。 |
| 9 | TGU | I | External time constant setting pin for switching tracking high-frequency gain. | トラッキング高域ゲイン切り換え用時定数外付け端子です。 |
| 10 | TG2 | I | External time constant setting pin for switching tracking high-frequency gain. | トラッキング高域ゲイン切り換え用時定数外付け端子です。 |
| 11 | FSET | I | High cut-off frequency setting pin for focus and tracking phase compensation amplifier. | フォーカス・トラッキングの位相補償のピーク設定用端子です。 |
| 12 | TA_M | I | Tacking amplifier inverted input. | トラッキング・アンプの反転入力端子です。 |
| 13 | TA_O | O | Tracking drive output. | トラッキングドライブ出力です。 |
| 14 | SL_P | I | Sled amplifier non-inverted input. | スレッド・アンプの非反転入力端子です。 |
| 15 | SL_M | I | Sled amplifier inverted input. | スレッド・アンプの反転入力端子です。 |
| 16 | SLO | O | Sled drive output. | スレッドドライブ出力です。 |
| 17 | ISET | I | Setting pin for Focus search, Track jump, and Sled kick current. | フォーカスサーチ、トラックジャンプ、スレッドキックの高さを決める電流を流します。 |
| 19 | CLK | I | Serial data transfer clock input from CPU. (no pull-up resistance) | CPUからのシリアルデータ転送クロック入力です。(プルアップ抵抗無し) |
| 20 | XLT | I | Latch input from CPU. (no pull-up resistance) | CPUからのラッチ入力です。(プルアップ抵抗無し) |

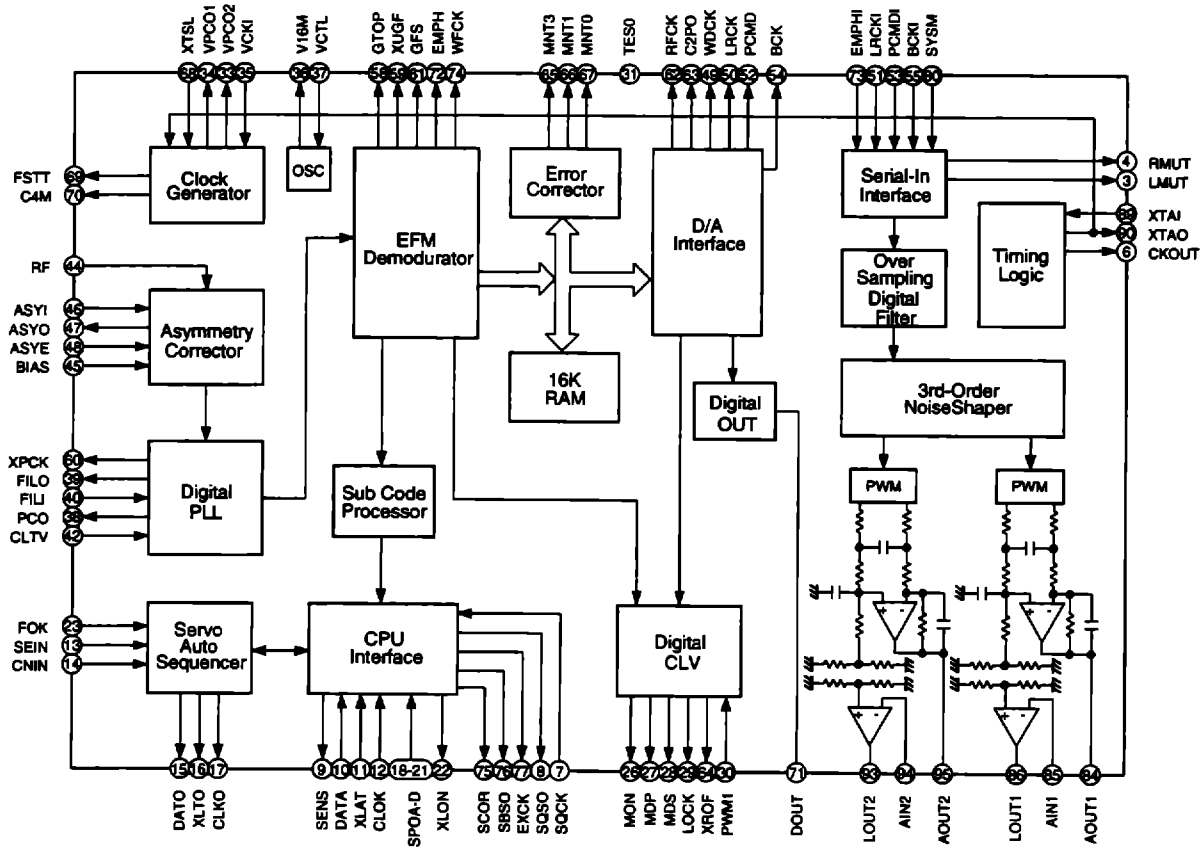
CXA1782CQ

| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 21 | DATA | I | Serial data input from CPU. (no pull-up resistance) | CPUからのシリアルデータ入力です。(プルアップ抵抗無し) |
| 22 | XRST | I | Reset input ; resets at Low. (no pull-up resistance) | リセット入力端子"L"でリセットします。(プルアップ抵抗無し) |
| 23 | C.OUT | O | Track number count signal output. | トラック数カウント用信号出力です。 |
| 24 | SENS | O | Output FZC, DFCT, TZC, gain, balance, and others according to the command from CPU. | CPUからのコマンドにより, FZC, DFCT, TZC, Gain, BALなどを出力します。 |
| 25 | FOK | O | Focus OK comparator output. | フォーカスOKコンパレータの出力端子です。 |
| 26 | CC2 | I | Input for the DEFECT bottom hold output with capacitance coupled. | DEFECTボトム・ホールド出力が容量統合されて入力される入力端子です。 |
| 27 | CCI | O | DEFECT bottom hold output. | DEFECTボトム・ホールド出力端子です。 |
| 28 | CB | I | Connection pin for DEFECT bottom hold capacitor. | DEFECTボトム・ホールドコンデンサ接続端子です。 |
| 29 | CP | I | Connection pin for MIRR hold capacitor.<br>MIRR comparator non-inverted input. | MIRRホールド・コンデンサの接続端子です。<br>MIRRコンパータの非反転入力端子です。 |
| 30 | RF_I | I | Input for the RF summing amplifier output with capacitance coupled. | RFサミングアンプの出力が容量統合されている入力端子です。 |
| 31 | RF_O | O | RF summing amplifier output. Eye-pattern check point. | RFサミングアンプの出力端子です。Eyeパターンのチェックポイントです。 |
| 32 | RF_M | I | RF summing amplifier inverted input. The RF amplifier gain is determined by the resistance connected between this pin and RFO pin. | RFサミングアンプの反転入力端子です。この端子とRFO端子間に接続された抵抗でRFアンプのゲインが決まります。 |
| 33 | LD | O | APC amplifier output. | APCアンプの出力端子です。 |
| 34 | PHD | I | APC amplifier input. | APCアンプの入力端子です。 |
| 35<br>36 | PHD1<br>PHD2 | I<br>I | RF I-V amplifier inverted input.<br>Connect these pins to the photo diode A+C and B+D pins. | RFI-Vアンプの反転入力端子です。それぞれフォトダイオードのA+C, B+D端子に接続して電流入力で受けます。 |
| 37 | FE_BIAS | I | Bias adjustment of focus error amplifier. | フォーカス・エラーアンプのバイアス調整用端子です。 |
| 38<br>39 | F<br>E | I<br>I | FI-V and EI-V amplifier inverted input.<br>Connect these pins to photo diodes F and E. | F, EのI-Vアンプの反転入力端子です。それぞれ,フォトダイオードのF, Eに接続して電流入力で受けます。 |
| 40 | EI | - | I-V amplifier E gain adjustment. (When not using automatic balance adjustment) | I-VアンプEのゲイン調整用端子です。(BAL自動調整を使用しない時) |
| 41 | $V_{EE}$ | - | $V_{EE}$ | $V_{EE}$ |
| 42 | TEO | O | Tracking error amplifier output. E-F signal is output. | トラッキング・エラーアンプの出力端子です。E-F信号が出力されます。 |
| 43 | LPFI | I | Comparator input for balance adjustment. (Input from TEO through LPF) | BAL調整用コンパレータ入力端子です。(TEOからLPFを介して入力) |
| 44 | TEI | I | Tracking error input. | トラッキング・エラーの入力端子です。 |
| 45 | ATSC | I | Window comparator input for ATSC detection. | ATSC検出用ウインドウコンパレータ入力端子です。 |
| 46 | TZC | I | Tracking zero-cross comparator input. | トラッキング・ゼロクロスコンパレータの入力端子です。 |
| 47 | TDFCT | I | Capacitor connection pin for defect time constant. | ディフェクト時の時定数用コンデンサ接続端子です。 |
| 48 | VC | O | $(V_{CC}+V_{EE})/2$ DC voltage output. | $(V_{CC}+V_{EE})/2$の直流電圧出力端子です。 |

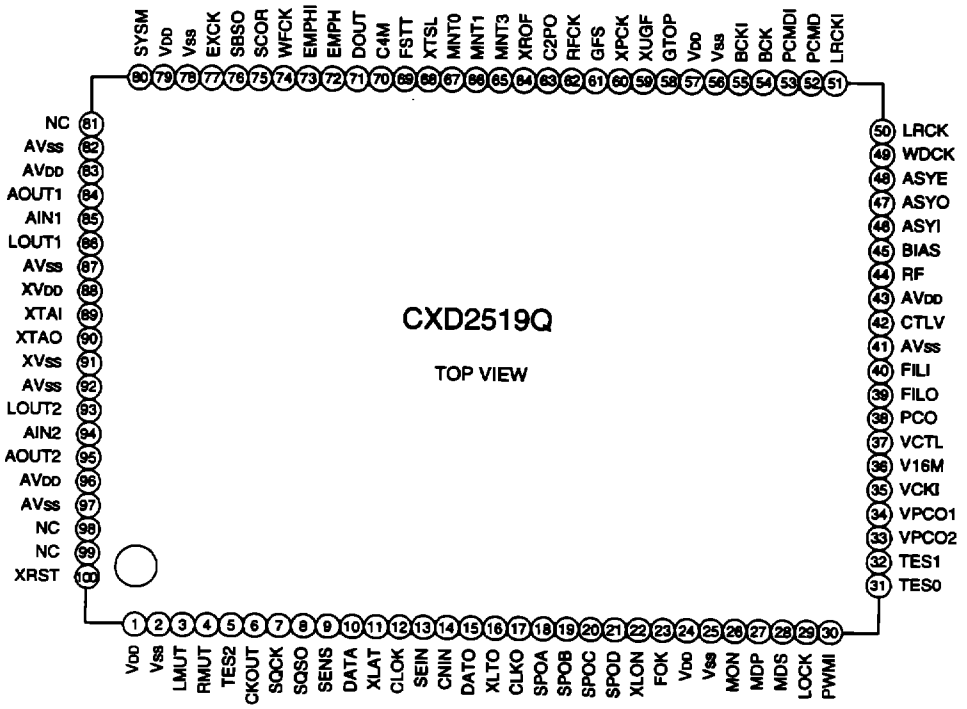
## ■ CXD2519Q (IC301 : MAIN BOARD ASSY)

### ● CD DIGITAL SIGNAL PROCESSOR (CD用デジタル信号処理)

### ● Block Diagram (ブロックダイアグラム)


Clock Generator
OSC
EFM Demodurator
Error Corrector
D/A Interface
Serial-In Interface
Timing Logic
Over Sampling Digital Filter
16K RAM
Digital OUT
3rd-Order NoiseShaper
Asymmetry Corrector
Digital PLL
Sub Code Processor
Servo Auto Sequencer
CPU Interface
Digital CLV
PWM
PWM
XTSL VPCO1 VPCO2 VCKI V16M VCTL GTOP XUGF GFS EMPH WFCK MNT3 MNT1 MNT0 TES0 RFCK C2PO WDCK LRCK PCMD BCK EMPHI LRCKI PCMDI BCKI SYSM
FSTT C4M RF ASYI ASYO ASYE BIAS XPCK FILO FILI PCO CLTV FOK SEIN CNIN
RMUT LMUT XTAI XTAO CKOUT
DATO XLTO CLKO SENS DATA XLAT CLOK SPOA-D XLON SCOR SBSO EXCK SQSO SQCK MON MDP MDS LOCK XROF PWMI DOUT LOUT2 AIN2 AOUT2 LOUT1 AIN1 AOUT1

### ● Pin Assignment (ピン配置図)


CXD2519Q
TOP VIEW
SYSM VDD VSS EXCK SBSO SCOR WFCK EMPHI EMPH DOUT C4M FSTT XTSL MNT0 MNT1 MNT3 XROF C2PO RFCK GFS XPCK XUGF GTOP VDD VSS BCKI BCK PCMDI PCMD LRCKI
NC AVSS AVDD AOUT1 AIN1 LOUT1 AVSS XVDD XTAI XTAO XVSS AVSS LOUT2 AIN2 AOUT2 AVDD AVSS NC NC XRST
LRCK WDCK ASYE ASYO ASYI BIAS RF AVDD CTLV AVSS FILI FILO PCO VCTL V16M VCKI VPCO1 VPCO2 TES1 TES0
VDD VSS LMUT RMUT TES2 CKOUT SQCK SQSO SENS DATA XLAT CLOK SEIN CNIN DATO XLTO CLKO SPOA SPOB SPOC SPOD XLON FOK VDD VSS MON MDP MDS LOCK PWMI

● Pin Function (端子機能) CXD2519Q

| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 1 | $V_{DD}$ | - | Power Supply (+5V). | 電源(+5V) |
| 2 | Vss | - | GND | GND |
| 3 | LMUT | O | Left-channel zero detection flag. | Lch・"0"検出フラグ |
| 4 | RMUT | O | Right-Channel zero detecton flag. | Rch・"0"検出フラグ |
| 5 | TES2 | O | TEST output pin ; normally open. | TEST用出力端子 通常オープン |
| 6 | CKOUT | O | Master clock frequency-divider output.<br>Selects and outputs XTAI ×1,×1/2,×1/4 or low only. | マスタクロック分周出力端子<br>XTAIの×1,×1/2,×1/4,もしくは"L"のみを選択して出力 |
| 7 | SQCK | I | SQSO readout clock input. | SQSOリード・アウト用クロック入力 |
| 8 | SQSO | O | Sub Q 80-bit serial output. | SubQ 80bitのシリアル出力 |
| 9 | SENS | O | SENS output to CPU. | SENS出力 CPUへ出力 |
| 10 | DATA | I | Serial data input from CPU. | CPUよりシリアルデータ入力 |
| 11 | XLAT | I | Latch input from CPU. Serial data is latched at the falling edge. | CPUよりラッチ入力 立ち下がりでシリアルデータをラッチ |
| 12 | CLOK | I | Serial data transfer clock input from CPU. | CPUよりシリアルデータ転送クロック入力 |
| 13 | SEIN | I | SENS input from SSP. | SSPよりセンス入力 |
| 14 | CNIN | I | Track jump count signal input. | トラックジャンプ数カウント信号入力 |
| 15 | DATO | O | Serial data output to SSP. | SSPへシリアルデータ出力 |
| 16 | XLTO | O | Serial data latch output to SSP. Latched at the falling edge. | SSPへシリアルデータラッチ出力 立ち下がりでラッチ |
| 17 | CLKO | O | Serial data transfer clock output to SSP. | SSPへシリアルデータ転送クロック出力 |
| 18 | SPOA | I | Microcomputer extended interface (input A). | マイコン拡張インタフェース(入力A) |
| 19 | SPOB | I | Microcomputer extended interface (input B). | マイコン拡張インタフェース(入力B) |
| 20 | SPOC | I | Microcomputer extended interface (input C). | マイコン拡張インタフェース(入力C) |
| 21 | SPOD | I | Microcomputer extended interface (input D). | マイコン拡張インタフェース(入力D) |
| 22 | XLON | O | Microcomputer extended interface (output). | マイコン拡張インタフェース(出力) |
| 23 | FOK | I | Focus OK input.<br>Used for SENS output and the servo auto sequencer. | フォーカスOK入力端子<br>SENS出力とサーボ・オートシーケンサに使用 |
| 24 | VDD | - | Power supply (+5V). | 電源(+5V) |
| 25 | Vss | - | GND. | GND |
| 26 | MON | O | Spindle motor on/off control output. | スピンドルモータのON/OFFコントロール出力 |
| 27 | MDP | O | Spindle motor servo control. | スピンドルモータのサーボ制御 |
| 28 | MDS | O | Spindle motor servo control. | スピンドルモータのサーボ制御 |
| 29 | LOCK | O | GFS is sampled at 460Hz;When GFS is high, this pin outputs a high signal. If GFS is low eight consecutive samples, this pin outputs low. | GFSを460Hzでサンプリングし，GFSがHの時，H出力 8回連続Lの場合L出力 |
| 30 | PWMI | I | Spindle motor external ontrol input. | スピンドルモータの外部制御入力 |
| 31 | TES0 | I | TEST pin ; normally GND. | TEST用端子 通常GND |
| 32 | TES1 | I | TEST pin ; normally GND. | TEST用端子 通常GND |
| 33 | VPCO2 | O | Wide-band EFM PLL charge pump output. Turned on/off by FCSW of address E. | 広帯域EFM PLL用チャージポンプ出力 アドレスEのFCSWにてON/OFF |
| 34 | VPCO1 | O | Charge pump output for wide-band EFM PLL. | 広帯域EFM PLL用チャージポンプ出力 |
| 35 | VCKI | I | VCO2 oscillation input for the wide-band EFM PLL. | 広帯域EFM PLL用VCO2発振入力 |
| 36 | V16M | O | VCO2 oscillation output for the wide-band EFM PLL. | 広帯域EFM PLL用VCO2発振出力 |
| 37 | VCTL | I | VCO2 controll voltage input for the wide-band EFM PLL. | 広帯域EFM PLL用VCO2コントロール電圧入力 |
| 38 | PCO | O | Master PLL charge pump output. | マスタPLL用チャージポンプ出力 |
| 39 | FILO | O | Master PLL (slave=digital PLL)filter output. | マスタPLL用(スレーブ=デジタルPLL)フィルタ出力 |
| 40 | FILI | I | Master PLL filter input. | マスタPLL用フィルタ入力 |

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| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 41 | AVSS | - | Analog GND. | アナログGND |
| 42 | CLTV | I | Master VCO control voltage input. | マスタ用VCOコントロール電圧入力 |
| 43 | AVDD | - | Analog Power supply (+5V). | アナログ電源(+5V) |
| 44 | RF | I | EFM signal input. | EFM信号入力 |
| 45 | BIAS | I | Constant current input of the asymmetry circuit. | アシンメトリー回路定電流入力 |
| 46 | ASYI | I | Asymmetry comparator voltage input. | アシンメトリーコンパレート電圧入力 |
| 47 | ASYO | O | EFM full-swing output (low=Vss, high=VDD). | EFMフルスイング出力(L=Vss, H=VDD) |
| 48 | ASYE | I | Low:asymmetry circuit off; high:asymmetry circuit on | L:アシンメトリー回路OFF H:アシンメトリー回路ON |
| 49 | WDCK | O | D/A interface. Word clock f=2fs | D/Aインタフェース ワードクロックf=2Fs |
| 50 | LRCK | O | D/A interface. LR clock output f=fs | D/Aインタフェース LRクロック出力f=Fs |
| 51 | LRCKI | I | LR clock input. | LRクロック入力 |
| 52 | PCMD | O | D/A interface.Serial data output (two's complememt, MSB first). | D/Aインタフェース シリアルデータ出力<br>(2's COMP, MSBファースト) |
| 53 | PCMDI | I | D/A interface.Serial data input (two's complement, MSB first). | D/Aインタフェース シリアルデータ入力<br>(2's COMP, MSBファースト) |
| 54 | BCK | O | D/A interface.Bit clock output. | D/Aインタフェース ビットクロック出力 |
| 55 | BCKI | I | D/A interface.Bit clock input. | D/Aインタフェース ビットクロック入力 |
| 56 | Vss | - | GND. | GND |
| 57 | VDD | - | Power supply (+5V). | 電源(+5V) |
| 58 | GTOP | O | GTOP output. | GTOP出力 |
| 59 | XUGF | O | XUGF output. | XUGF出力 |
| 60 | XPCK | O | XPLCK output. | XPLCK出力 |
| 61 | GFS | O | GFS output. | GFS出力 |
| 62 | RFCK | O | RFCK output. | RFCK出力 |
| 63 | C2PO | O | C2PO output. | C2PO出力 |
| 64 | XROF | O | XRAOF output. | XRAOF出力 |
| 65 | MNT3 | O | MNT3 output. | MNT3出力 |
| 66 | MNT1 | O | MNT1 output. | MNT1出力 |
| 67 | MNT0 | O | MNT0 output. | MNT0出力 |
| 68 | XTSL | I | Crystal selector input.<br>Low: 16.9344MHz;high:33.8688MHz. | X'tal選択入力端子<br>X'talが16.9344MHzの時L 33.8688MHzの時H |
| 69 | FSTT | O | 2/3 frequency-divider output for Pins 89 and 90. | 89, 90番端子の2/3分周出力 |
| 70 | C4M | O | 4.2336MHz Output.<br>1/4 frequency divided VCKI output in CAV-W mode. | 4.2336MHz出力<br>CAV-Wモード時はVCKIの1/4分周が出力 |
| 71 | DOUT | O | Digital Out output. | Digital Out出力端子 |
| 72 | EMPH | O | Outputs a hiqh signal when the playback disc has emphasis, and a low signal when there is no emphasis. | 再生Discがエンファシス有りの時H出力 無しの時L出力 |
| 73 | EMPHI | I | Inputs a high signal when de-emphasis is on, and a low signal when de-emphasis is off. | ディエンファシスONの時H入力 OFFの時L入力 |
| 74 | WFCK | O | WFCK output. | WFCK出力 |
| 75 | SCOR | O | Outputs a high signal when either subcode sync S0 or S1 is detected. | サブコードシンクS0かS1どちらか検出された時H出力 |
| 76 | SBSO | O | Sub P to W serial output. | SubP Wのシリアル出力 |
| 77 | EXCK | I | SBSO readout clock input. | SBSOリード・アウト用クロック入力 |
| 78 | Vss | - | GND. | GND |
| 79 | VDD | - | Power supply (+5V). | 電源(+5V) |
| 80 | SYSM | I | Mute input. Active when high. | ミュート入力端子 "H"の時アクティブ |

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| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 81 | NC | - | ———— | ———— |
| 82 | AVss | - | Analog GND. | アナログGND |
| 83 | AVDD | - | Analog power supply (+5V). | アナログ電源(+5V) |
| 84 | AOUT1 | O | Left-channel analog output. | Lch・アナログ出力端子 |
| 85 | AIN1 | I | Left-channel operational amplifier input. | Lch・OPAMP入力端子 |
| 86 | LOUT1 | O | Left-channel LINE output. | Lch・LINE出力端子 |
| 87 | AVss | - | Analog GND. | アナログGND |
| 88 | XVDD | - | Power supply for master clock. | マスタクロック用電源 |
| 89 | XTAI | I | Crystal oscillation circuit input.<br>Input the external master clock via this pin. | 水晶発振回路入力端子<br>マスタクロックを外部から入力する場合この端子から入力 |
| 90 | XTAO | O | Crystal oscillation circuit output. | 水晶発振回路出力端子 |
| 91 | XVss | - | GND for master clock. | マスタクロック用GND端子 |
| 92 | AVss | - | Analog GND. | アナログGND |
| 93 | LOUT2 | O | Right-channel LINE output. | Rch・LINE出力端子 |
| 94 | AIN2 | I | Right-channel operational amplifier input. | Rch・OPAMP入力端子 |
| 95 | AOUT2 | O | Right-channel analog output. | Rch・アナログ出力端子 |
| 96 | AVDD | - | Analog power supply (+5V). | アナログ電源(+5V) |
| 97 | AVss | - | Analog GND. | アナログGND |
| 98 | NC | - | ———— | ———— |
| 99 | NC | - | ———— | ———— |
| 100 | XRST | I | System reset. Reset when low. | システムリセットLでリセット |

Notes)
- PCMD is an MSB first, tow's complement output.
- GTOP is used to monitor the frame sync protection status.(High:sync protection window released.)
- XUGF is the negative pulse for the frame sync derived from the EFM signal. It is the signal before Sync protection.
- XPLCK is the inverse of the EFM PLL clock. The PLL is designed so that the falling edge of XPLCK and the EFM signal transition point coincide.
- GFS goes high when the frame sync and the insertion protection timing match.
- RFCK is derived with the crystal accuracy. This signal has a sycle of 136 $\mu$ s(during normal-speed.)
- C2PO represents the data error status.
- XRAOF is genarated when the 16K RAM exceeds the ±4F jitter margin.

注)
- PCMDは，MSBファーストの2'sコンプリメント出力です。
- GTOPは，Frame syncの保護状況をモニタするものです。(H:シンク保護ウィンドウ開放)
- XUGFは，EFM信号から得られたFrame syncで，ネガティブパルスです。シンク保護前の信号。
- XPLCKは，EFM PLLのクロックの反転。立ち下がりエッジとEFM信号の辺か点が，合うようにPLLが作られています。
- GFSは，Frame syncと内挿タイミングが一致した時Hとなる信号です。
- RFCKは，X'tal精度で作られる136 $\mu$ 周期の信号(通常速時)です。
- C2POは，Dataのエラー状態を表す信号です。
- XRAOFは，16K RAMが，±4Fのジッターマージンを超えた時，発生する信号です。

## ■ PD4817A (IC351:MAIN BOARD ASSY)

### ● SYSTEM CONTROL μCOM (システムコントロールマイコン)

### ● Pin Function (端子機能)

| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 1 | DG3 | O | FL driving DIGIT output. | FL駆動用 DIGIT 出力 |
| 2 | DG4 | O | | |
| 3 | DG6 | O | | |
| 4 | DG7 | O | | |
| 5 | DG9 | O | | |
| 6 | DG10 | O | | |
| 7 | DG11 | O | | |
| 8 | VDD | +5V | +5V | +5V |
| 9 | CLOK | O | Serial clock. | シリアル クロック |
| 10 | MDAT | O | LSI control data serial output. | LSI 制御データ シリアル出力 |
| 11 | SQSO | I | Q data serial input.(for FCOK, GFS, SENS) | Qデータ シリアル入力(FCOK/GFS/SENS兼用) |
| 12 | MOPN | O | Door motor output. Open (MOPN : H, MCLS : L) Close (MOPN : H, MCLS : H) Stop (MOPN : L, MCLS : L) | ドア モーター出力 開(MOPN : H, MCLS : L) 閉(MOPN : H, MCLS : H) 停(MOPN : L, MCLS : L) |
| 13 | MCLS | O | | |
| 14 | NC | O | NC(OPEN) | 未使用(OPEN) |
| 15 | NC | O | | |
| 16 | NC | O | | |
| 17 | $\overline{\text{RESET}}$ | I | CPU Reset. (L : reset) | CPU リセット (L : リセット) |
| 18 | $\overline{\text{OPEN}}$ | I | Door open/close SW input. Open ($\overline{\text{CLS}}$ : H, $\overline{\text{OPEN}}$ : L) | ドア開閉SW入力 開($\overline{\text{CLS}}$ : H, $\overline{\text{OPEN}}$ : L) |
| 19 | $\overline{\text{CLS}}$ | I | Close ($\overline{\text{CLS}}$ : L, $\overline{\text{OPEN}}$ : H) | 閉($\overline{\text{CLS}}$ : L, $\overline{\text{OPEN}}$ : H) |
| 20 | AVSS | GND | GND | GND |
| 21 | LOUT | O | Output for loading motor. IN (LIN : H, LOUT : L) OUT (LIN : L, LOUT : H) Stop (LIN : L, LOUT : L) | ローディング モーター用出力 IN (LIN : H, LOUT : L) OUT (LIN : L, LOUT : H) 停止(LIN : L, LOUT : L) |
| 22 | LIN | O | | |
| 23 | DSRT | O | Selector output. Count up (DSRT : L, DSLT : H) Count down (DSRT : H, DSLT : L) Stop (DSRT : L, DSLT : L) | セレクター出力 カウントアップ(DSRT : L, DSLT : H) カウントダウン(DSRT : H, DSLT : L) 停止中(DSRT : L, DSLT : L) |
| 24 | DSLT | O | | |
| 25 | $\overline{\text{INSD}}$ | I | Slider INSDE SW input. (L : INSIDE) | スライダーINSIDE SW入力 (L : INSIDE) |
| 26 | $\overline{\text{EJCT}}$ | I | Lauding out SW input. (L : Lauding out end) | ローディングアウト SW入力 (L : ローディングアウト完) |
| 27 | $\overline{\text{CLMP}}$ | I | Clamp SW. (L : Clamped) | クランプ SW (L : クランプ完) |
| 28 | LDON | O | Laser diode output. (H : ON, L : OFF) | レーザー ダイオード 出力 (H : ON, L : OFF) |
| 29 | AVDD | +5V | +5V | +5V |
| 30 | AVREF | GND | GND | GND |
| 31 | NC | I | GND | GND |
| 32 | XT2 | - | NC (OPEN) | 未使用(OPEN) |
| 33 | VSS | GND | GND | GND |
| 34 | X1 | | Crystal connection for system clock oscillation :4.19MHz | システムクロック発振子接続端子4.19MHz |
| 35 | X2 | | | |
| 36 | DCNT | I | Disc count pulse input. | ディスク カウント パルス入力 |
| 37 | DPOS | I | Photo sensor input for disc position detection. | ディスク位置検出用 フォトセンサー入力 |
| 38 | NC | O | NC (OPEN) | 未使用(OPEN) |
| 39 | $\overline{\text{XLAT}}$ | O | LSI control data latch pulse output. | LSI制御データ ラッチパルス出力 |
| 40 | $\overline{\text{XRST}}$ | O | Reset input for each LSI | 各LSI用 リセット出力 |
| 41 | $\overline{\text{DLAT}}$ | O | DAC control data latch pulse output. | DAC制御データ ラッチパルス出力 |
| 42 | SYC1 | I | Synchronous input. (pull-up required) | シンクロ入力(要プルアップ) |
| 43 | SYC3 | O | Synchronous output. (Expansion) | シンクロ出力 (増設) |
| 44 | CNIN | I | C.OUT input. | C.OUT入力 |
| 45 | STTR | I | Trigger input for stand-by (During normal operation:L) | スタンバイ用 トリガー入力 (通常動作時:L) |
| 46 | SCOR | I | Subcode sync S0+S1 input. | サブコード シンク S0+S1入力 |
| 47 | RMDT | I | Remote control data input. (Expansion) | リモコンデータ入力 (増設) |
| 48 | IC | GND | GND | GND |
| 49 | MUTE | O | Muting output. (H : MUTE) | ミューティング出力(H : MUTE) |

PD4817A

| No. | Pin Name | I/O | Function | 機能 |
|---|---|---|---|---|
| 50 | QSEL | O | Signal output for QDATA determination (H : During output of QDATA) | QDATA判別用信号出力 (H : QDATA出力中) |
| 51 | TRCH | O | Data serial output for expansion. (Expansion) | 増設用 データ シリアル出力 (増設) |
| 52 | VDD | +5V | +5V | +5V |
| 53 | MUTB | O | Muting output. (L : MUTE) | ミューティング出力 (L : MUTE) |
| 54 | STBL | O | Output for STANDBY-LED/$\overline{\text{OSCE}}$ | STANDBY-LED/$\overline{\text{OSCE}}$ 兼用出力 |
| 55 | NC | O | NC (OPEN) | 未使用(OPEN) |
| 56 | LED6 | O | Output for LED6. | LED6用 出力 |
| 57 | KD3 | I | Key data input. | キー・データ 入力 |
| 58 | KD2 | I | | |
| 59 | KD1 | I | | |
| 60 | KD0/TEST | I | Key data input./TEST mode request input. (H : TEST, L : Normal mode) | キー・データ 入力/TESTモード要求入力 (H : TEST, L : 通常モード) |
| 61 | NC | O | NC(OPEN) | 未使用(OPEN) |
| 62 | NC | O | | |
| 63 | NC | O | | |
| 64 | NC | O | | |
| 65 | SEG N | O | FL driving segment output. | FL駆動用 セグメント出力 |
| 66 | SEG M | O | | |
| 67 | SEG K | O | | |
| 68 | SEG J | O | | |
| 69 | SEG H | O | | |
| 70 | SEG G | O | | |
| 71 | VLOAD | -26V | -26V | -26V |
| 72 | SEG F | O | FL driving segment output. | FL駆動用 セグメント出力 |
| 73 | SEG E | O | | |
| 74 | SEG D | O | | |
| 75 | SEG C | O | | |
| 76 | SEG B | O | | |
| 77 | SEG A | O | | |
| 78 | NC | O | NC (OPEN) | 未使用(OPEN) |
| 79 | DG1 | O | FL driving DIGIT output. | FL駆動用 DIGIT 出力 |
| 80 | DG2 | O | FL driving DIGIT output. | FL駆動用 DIGIT 出力 |

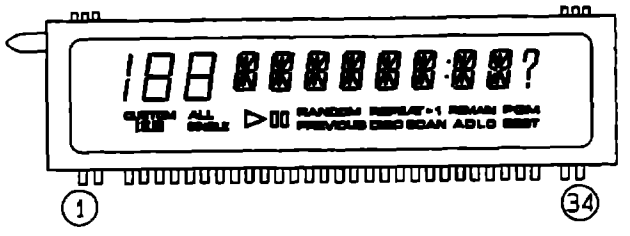
NOTE) H : High level, L : Low level, - : High IMP.

### 7.1.2 DISPLAY

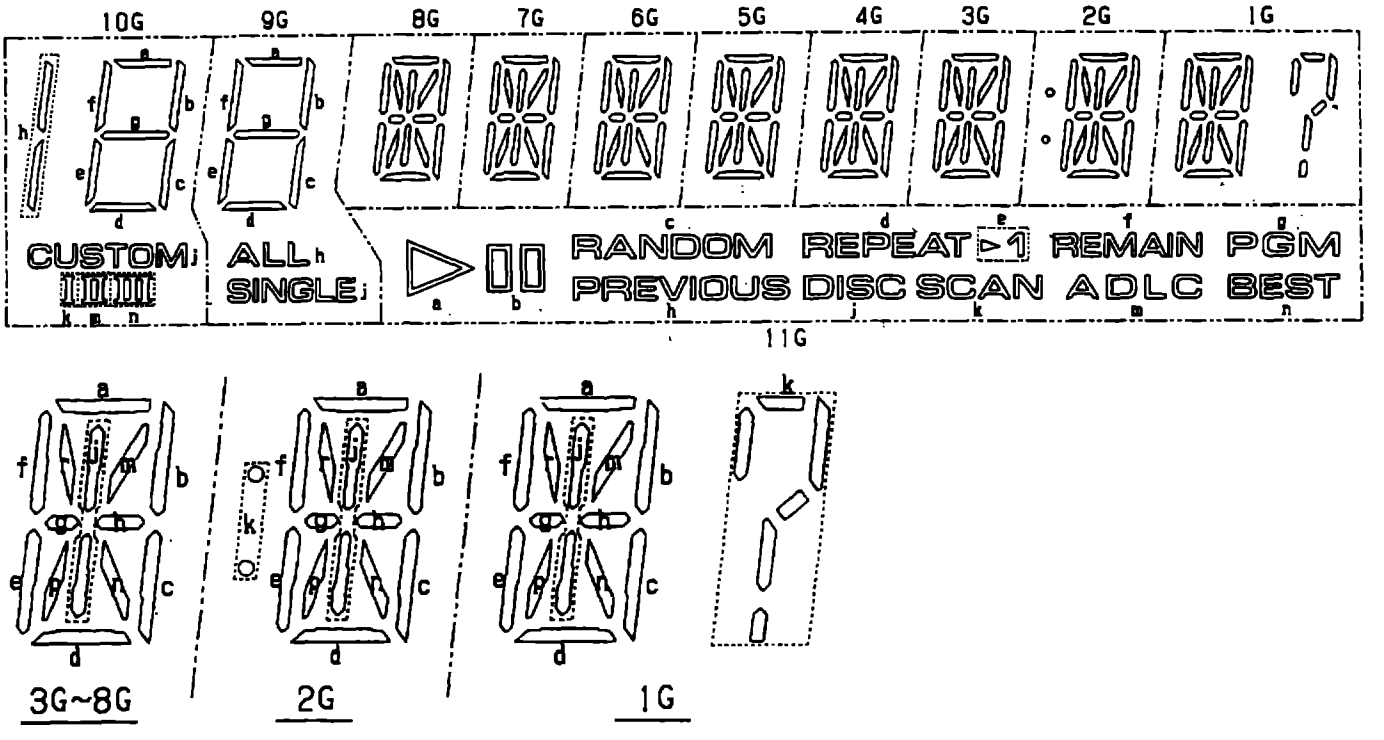
■ **PEL1089 (V701 : DISPLAY BOARD ASSY)**

● **FL TUBE**

PIN ASSIGNMENT




ANODE GRID ASSIGNMENT




PIN CONNECTION

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | F | F | NP | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G | NL | NL | NL | p | r | a |

| Pin No. | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Connection | b | c | d | e | f | g | h | j | k | m | n | NP | F | F |

F:Filament 1G~11G:Grid a~h, j, k, m, n, p, r:Anode NP:No Pin NL:No Lead

## 7.2 DIAGNOSIS

### 7.2.1 ERROR CODE DISPLAY

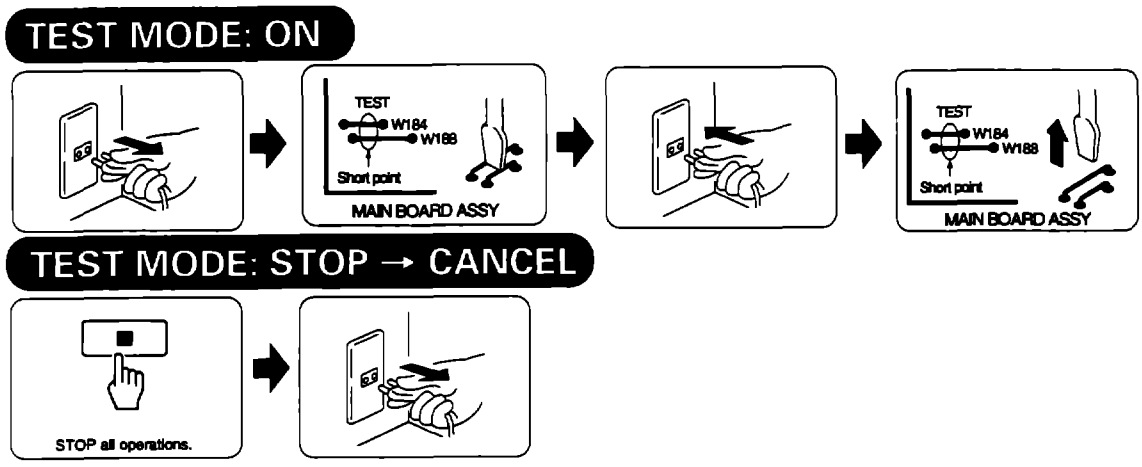
If a failure occurs in the Loading mechanism, the error symbol is automatically displayed on the fluorescent display screen of the front panel.

### 7.2.2 ERROR HISTORY AND DISPLAY

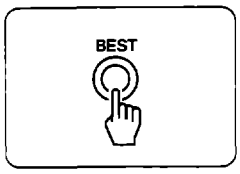
#### Error history display in test mode

The previously generated errors (NG processing) can be confirmed in the test mode. Since the has a backup function, the error history is memorized even if the power is turned off. (Memory holding time : About two days)

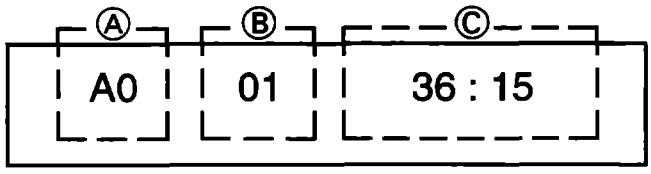
**■ Put the unit into the test mode.**




**■ Press the "BEST" button of the keys on the main body.**




An error appears on the fluorescent indicator display by the above operation.
Example)




Ⓐ Disc No. : Error code
Ⓑ Track No. : Error sequence
Ⓒ Minute:second No. : Error generation mode
(Only 10's digit is valid.)

The previously generated 16 error codes (maximum) can be memorized. These error codes are displayed one at a time in the ascending order by pressing the "BEST" button again.

*Note : A product performs fail safe operation when an error occurs. At that time, an error code is memorized by the fail safe operation after the error is eliminated.*

### 7.2.3 ERROR HISTORY DISPLAY

## (1) Disc No. Ⓐ : Detail of error code at portion

<Note> The user display appears only when the normal operation cannot be returned even if the fail safe operation is executed after each error occurs.

| User | display | Description |
|---|---|---|
| None | A0 | • A disc couldn't be detected for playback after loading because;<br>No disc existed.<br>A disc was turned upside down.<br>A disc was dirty.<br>A disc was loaded incompletely.<br>• The focus got out of place during playback due to the crack and stain on the disc. |
| None | A1 | • The servo mechanism couldn't move to the desired tune position within a fixed time during selection of a tune from playback or during playback. |
| U1 | A3 | • A disc couldn't be loaded within a fixed time.<br>(A disc couldn't be carried from the rack block.) |
| | A4 | • A disc couldn't be unloaded within a fixed time. (A disc couldn't be returned to the rack block.) |
| U2 | A2 | • The LOADING mechanism couldn't move to the desired disc position within a fixed time during selection of a disc from playback or during playback start from stop. |
| | A5 | • The LOADING mechanism couldn't be forcibly returned to the home position (left position when viewed from the front) within a fixed time after it is initialized or becomes NG. |
| None | A6 | • A disc couldn't be normally rotated for playback after loading because;<br>A disc was turned upside down.<br>A disc was dirty<br>A disc was loaded incompletely.<br>• A disc couldn't be normally rotated during playback due to the crack and stain on the disc. |

| User | display | Description |
|---|---|---|
| None | A7 | • Mechanism position just before the LOADING mechanism shifts to the disc selection operation when the DCNT pin is low. (The DCNT pin is usually high when the LOADING mechanism is in the stop state. The mechanism position is thus judged to have been shifted for some reason. The shifted mechanism position may cause a failure.) |
| None | A8 | • Discrepancy has occurred between the detected disc position and the current disc position during movement of the loading mechanism. (The system may incorrectly counted the waveforms of the DCNT and DPOS terminals. If counting is incorrect, the position of the disc No. displayed does not match the disc position counted.) |
| None | A9 | • Mechanism position during disc loading when the DCNT pin is low. (The DCNT pin is usually high when the LOADING mechanism is in the stop state. The mechanism position is thus judged to have been shifted for some reason. The shifted mechanism position may cause a failure.) |
| None | AA | • The pickup block cannot return to the innermost circumference when the playback is Completed or another disc is shifted. |

Hood section

| User | display | Description |
|---|---|---|
| U3 | P0 | The hood did not open within the specified time. The switch of the hood was malfunctioning. |
| | P1 | The hood did not close within the specified time. The switch of the hood was malfunctioning. |
| | P2 | The hood was attempted to be opened with force when it was completely closed. The switch of the hood was malfunctioning. |

## (2) Track No. Ⓑ : Error sequence in portion

The display of 1 to 16 appears. The low number indicates the recently generated error. The error whose number is "1" was generated most recently.

## (3) Minute : Second No. Ⓒ : Detail of error generation mode in portion

Indicates the internal mode in which the displayed error is generated. The upper digit in "minute : second" has the meaning.

| Digit of minute | | Digit of second | |
|---|---|---|---|
| Display | Contents | Display | Contents |
| 0 * | Spindle stop operation | 0 * | During closing of the hood and when the hood is completely close |
| 1 * | Disc return operation | | |
| 2 * | Disc selection operation | | |
| 3 * | Setup operation | 1 * | During opening of the hood and when the hood is completely open |
| 4 * | CD-R setup operation | | |
| 5 * | TOC read | | |
| 6 * | Track search operation | | |
| 7 * | Play | | |
| 8 * | Pause | | |
| 9 * | Manual search | | |

### 7.2.4 DISASSEMBLY

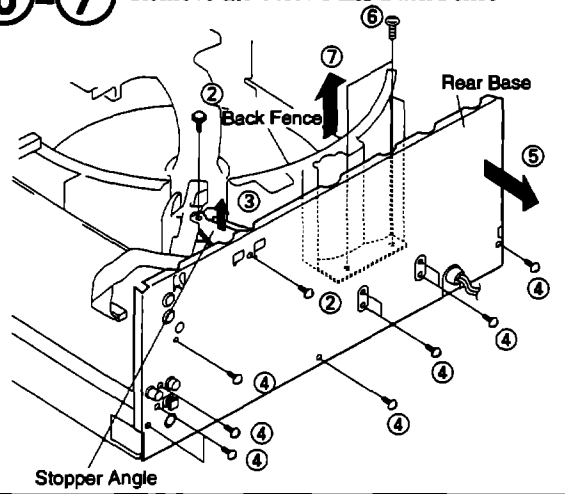
#### ■ REMOVING THE LOADING MECHANISM ASSY

① Remove the Bonnet.

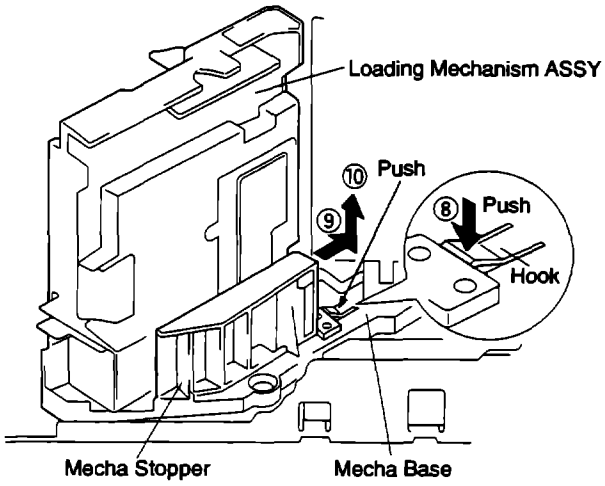
②-③ Remove the Screws and Stopper Angle.

④-⑤ Remove the Screws and Rear Base.

⑥-⑦ Remove the Screws and Back Fence.

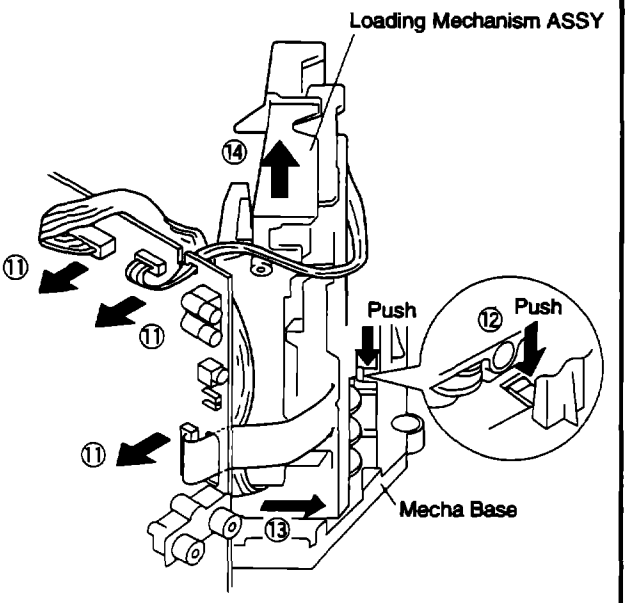



⑧-⑩ While holding down the hook of the Mecha Base, slide the Mechanism Stopper toward the right to pull up and remove the Mecha Stopper.




⑪ Remove the each wire.

⑫-⑭ While holding down the hook of the Mecha Base, slide the Loading Mechanism Assy to pull up and remove the Loading Mechanism Assy.



## ■ REMOVING THE OPERATION PANEL

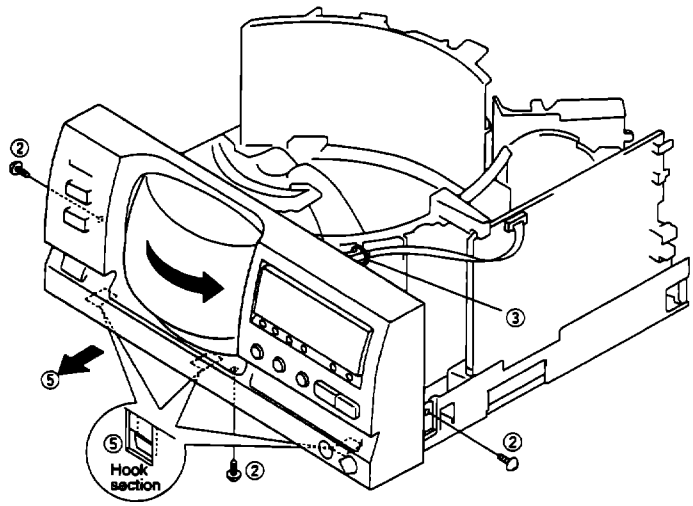
① Remove the Bonnet.

② Remove the Screws.

③ Cut the Binder securing the wire material.

④ Remove the Center Pole. (Refer to the "REMOVING THE DISC RACK")

⑤ Shift the Front Panel slightly toward you while paying attention to the back side hooks on the Chassis.

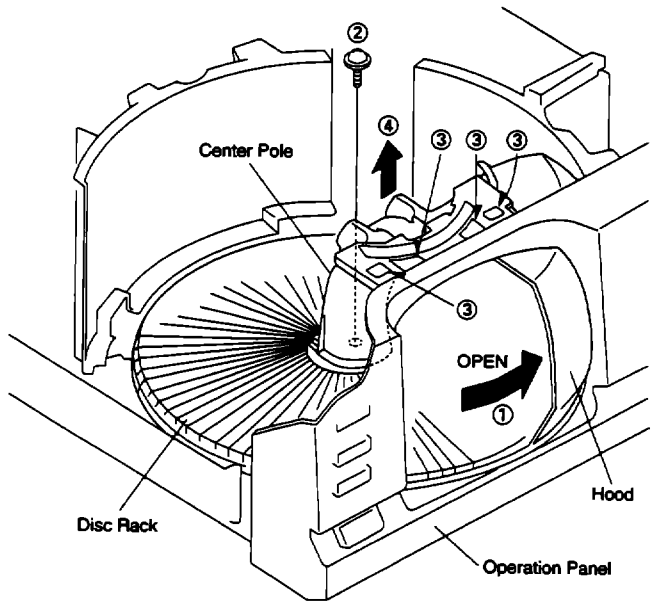



## ■ REMOVING THE DISC RACK

① Open the Hood.

② Remove the Screws.

③-④ Press the 4 hooks to remove the Center Pole from the Operation Panel.



## ■ REMOVE THE HOOD AND HOOD BASE

① Remove the Bonnet.

② Remove the Operation Panel. (Refer to the "REMOVING THE OPERATION PANEL")

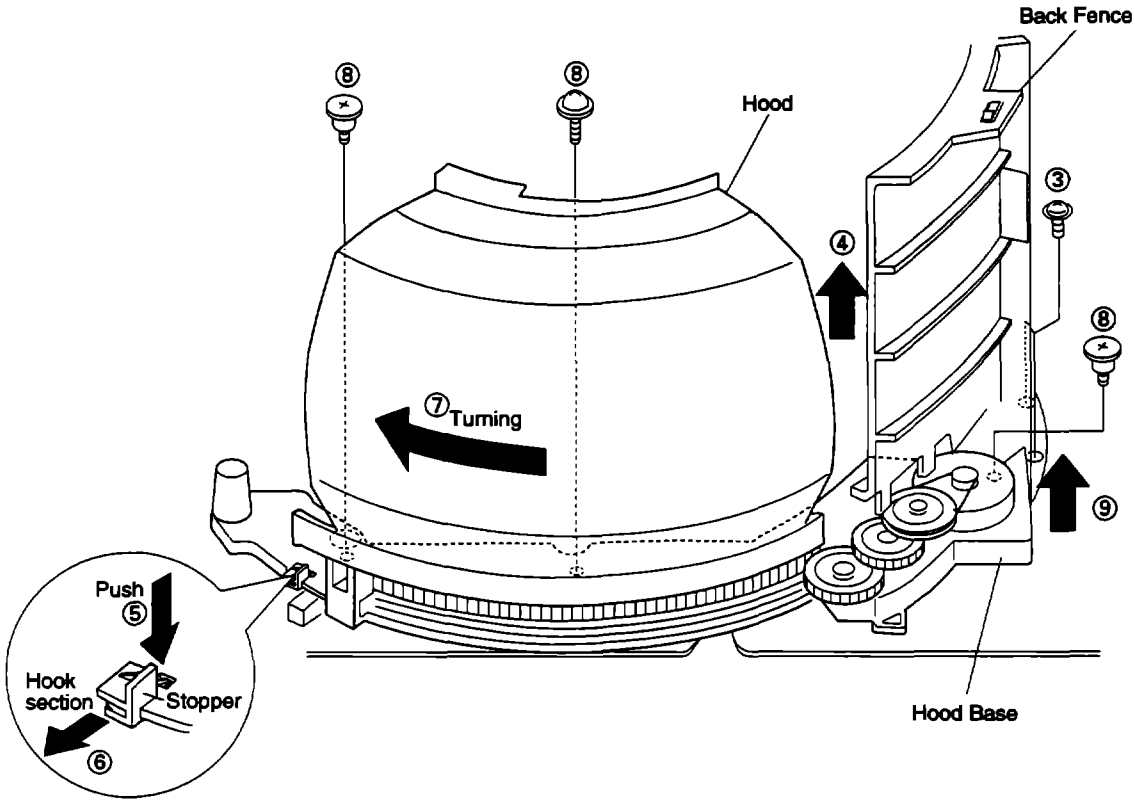
③ Remove the Screws.

④ Remove the Back Fence.

⑤-⑦ Press the hook of the Stopper of the Hood Base to remove the Stopper. Slide the Hood toward the left to remove the Hood.

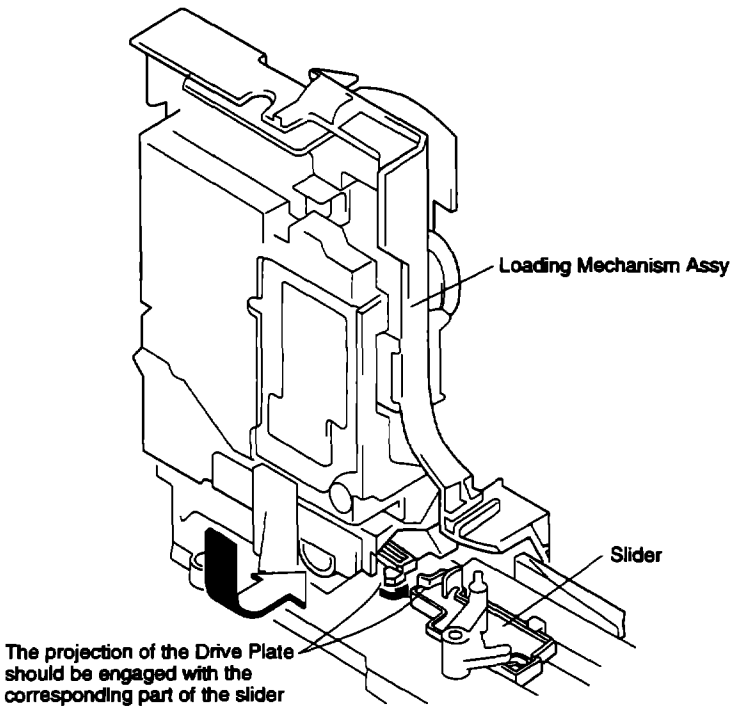
⑧ Remove the Screws.

⑨ Remove the Hood Base.



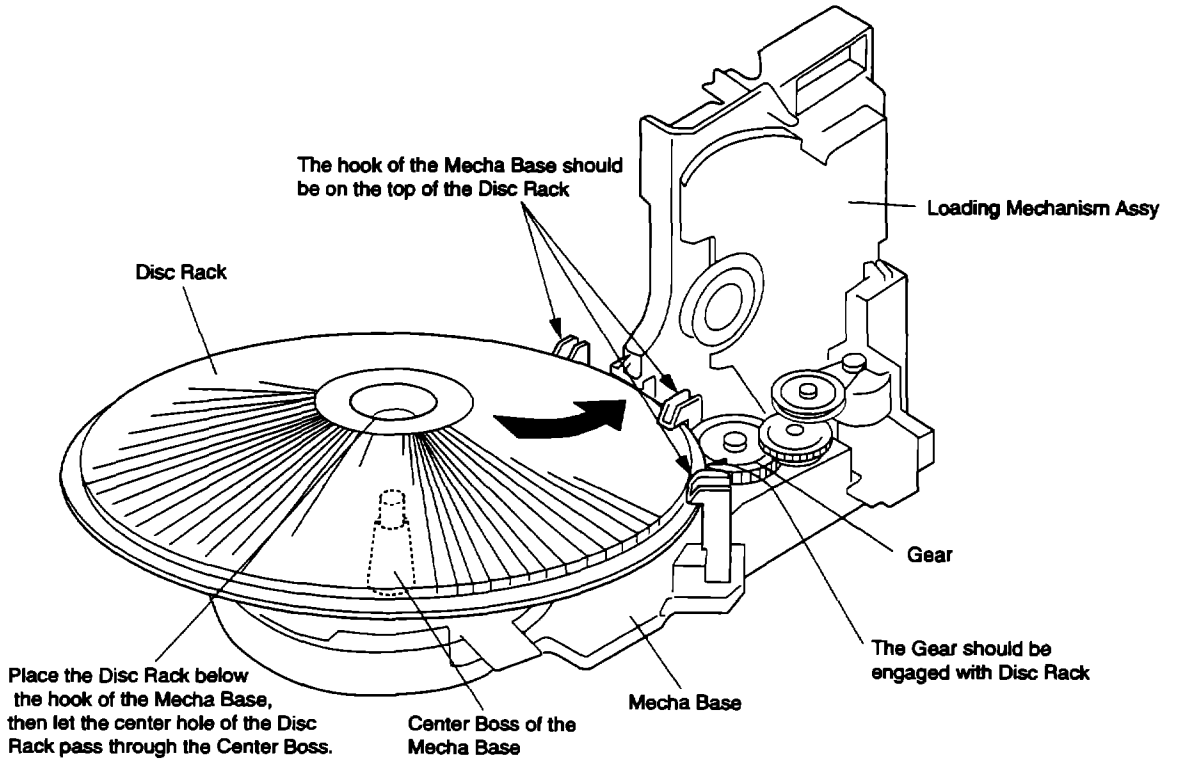
## ■ INSTALLING THE LOADING MECHANISM ASSY

①


Loading Mechanism Assy
Slider
The projection of the Drive Plate should be engaged with the corresponding part of the slider

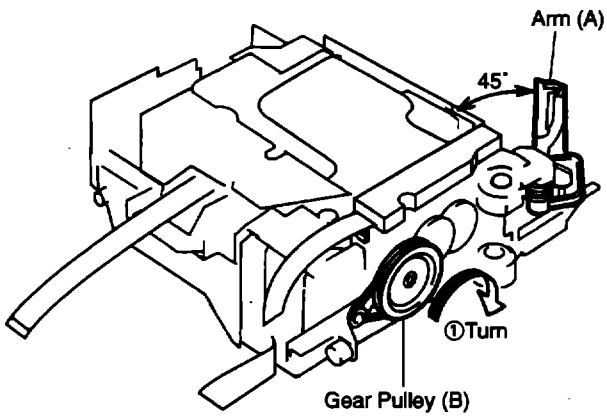
## ■ INSTALLING THE DISC RACK

①

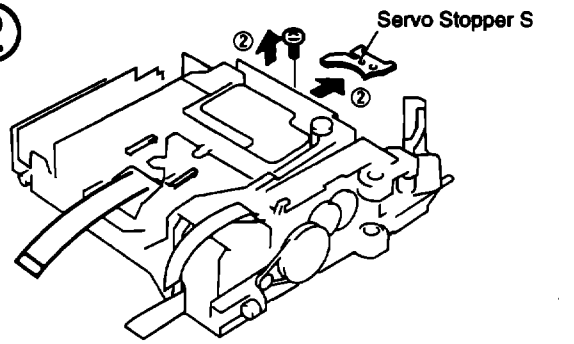

The hook of the Mecha Base should be on the top of the Disc Rack
Loading Mechanism Assy
Disc Rack
Gear
The Gear should be engaged with Disc Rack
Place the Disc Rack below the hook of the Mecha Base, then let the center hole of the Disc Rack pass through the Center Boss.
Center Boss of the Mecha Base
Mecha Base

## ■ REMOVING THE SERVO MECHANISM ASSY GM

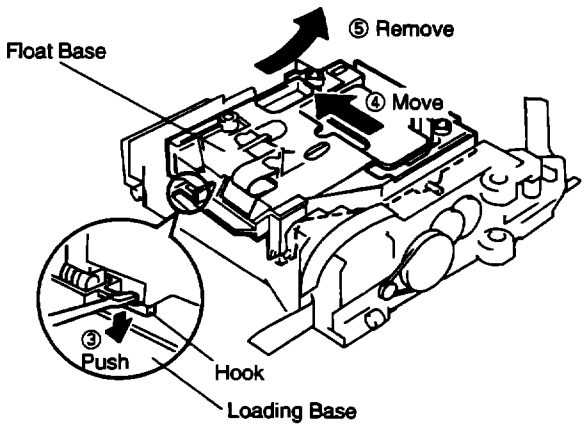
① Turn gear pulley (B) and position Arm (A) as shown below.




②

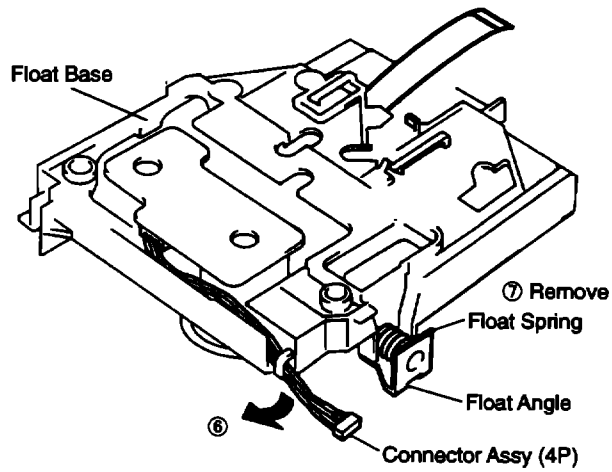



③-⑤ Slide the float base in the direction of the arrow ④ while pressing down on the loading base hook, and, lifting it gently, pull it out in the direction of the arrow ⑤.

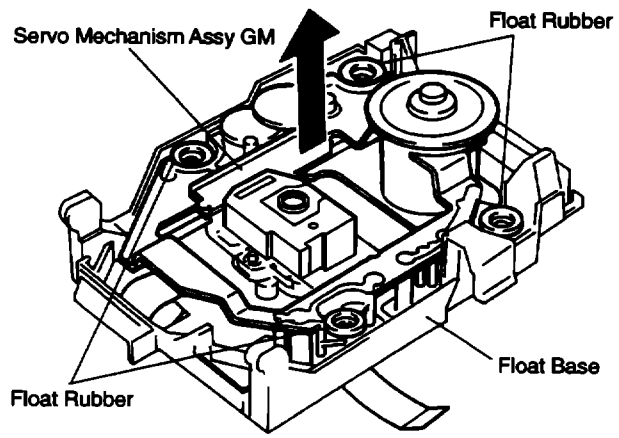



⑥ Remove the connector ASSY (4P) from the float base.

⑦ Remove the float spring. (To install this part, line up the float angle side of the Servo Mechanism ASSY GM first, and press down on the float base side.)




⑧ Remove the float rubber from the Servo Mechanism ASSY GM. At this time the float rubber should remain on the float base side. (To install it on the float base when it has been removed, push it into place with a thin cylindrical object.

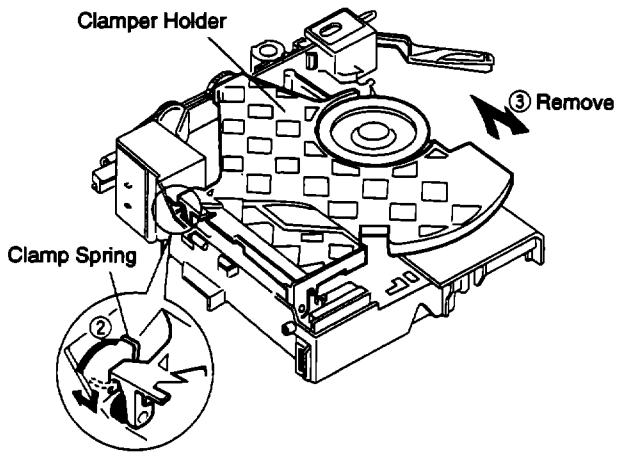


## ■ REMOVING THE ARM (A)

① Remove the float base together with the Servo Mechanism ASSY GM. (Refer to Steps ①–⑤ for "■ Removing the Servo Mechanism ASSY GM" .)

**②-③**

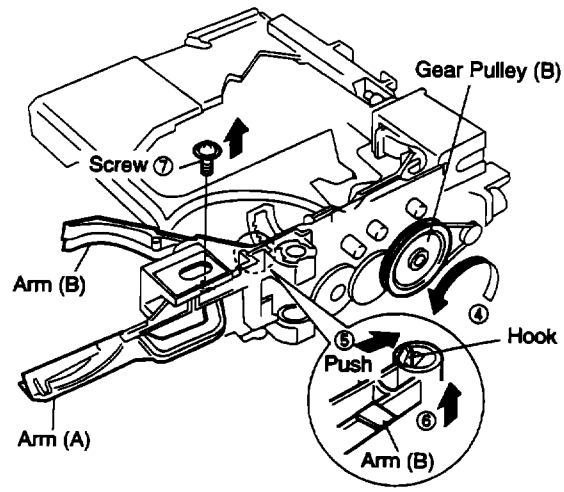
Remove the clamp spring and remove the clamper holder.




④ Turn gear pulley (B) and position Arm (A ) as shown below.

⑤,⑥ Remove Arm (B) while pressing the hook in the direction of the arrow.

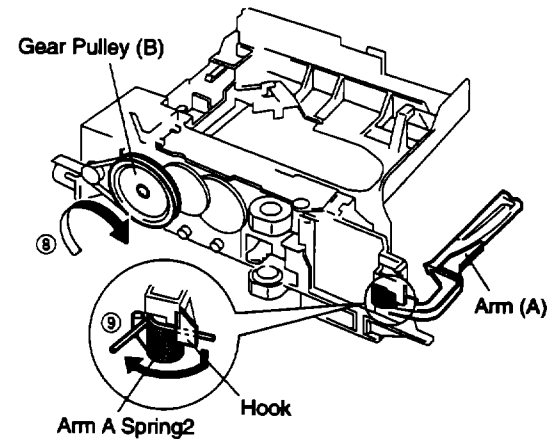
⑦ Remove screw ⑦.



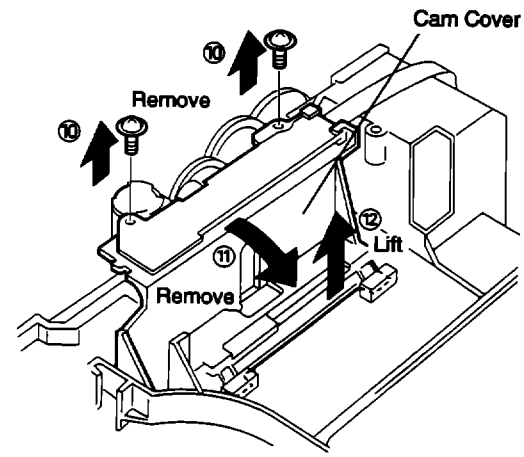

⑧ Turn gear pulley (B) and position Arm (A) as shown below.

⑨ Remove the Arm A spring2 from its hook.

*Note: Do not hold the tip (blade) of arm (A) during operation.*



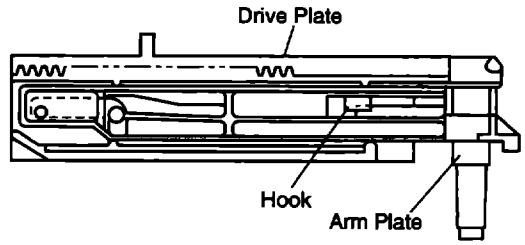

**⑩-⑫**



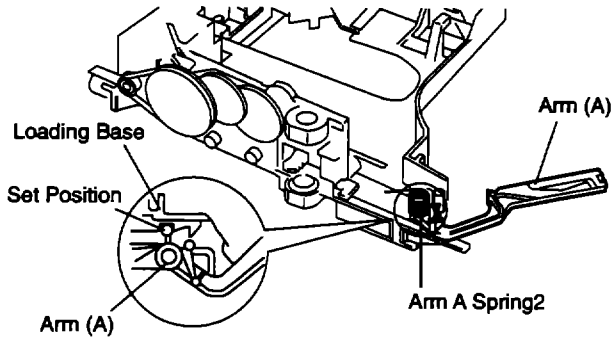

⑬ Remove drive plate, Arm plate, Arm A spring2 and Arm (A). (Refer to Steps ③-④ on page 47.)

## ■ FOR REASSEMBLY, REVERSE THE DISASSEMBLY PROCEDURE, AND IN ADDITION CARRY OUT THE FOLLOWING ITEMS.

① Assemble the arm plate as shown below, watching out for the drive plate hook.

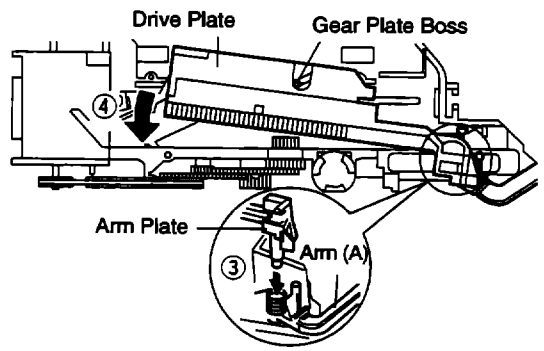



② Place Arm (A) and the Arm A spring2 on the loading base, being careful to keep them in the position shown below.

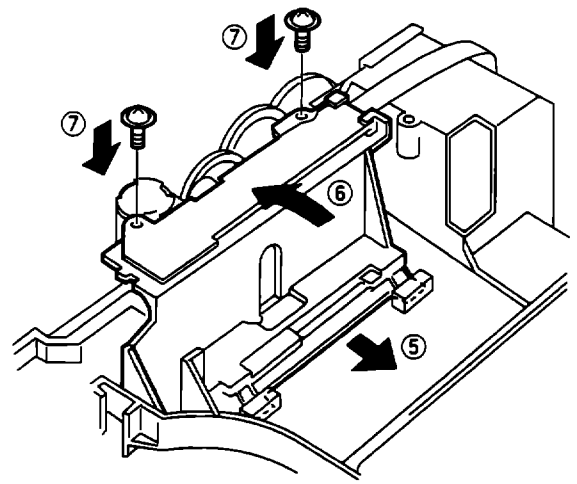



③ Set the drive plate and arm plate, which were assembled in Step ①, on the Arm (A) side as shown below. At this time be careful to keep Arm (A) in the position described in Step ②.

④ Insert the gear plate boss into the drive plate groove and pull it toward you.



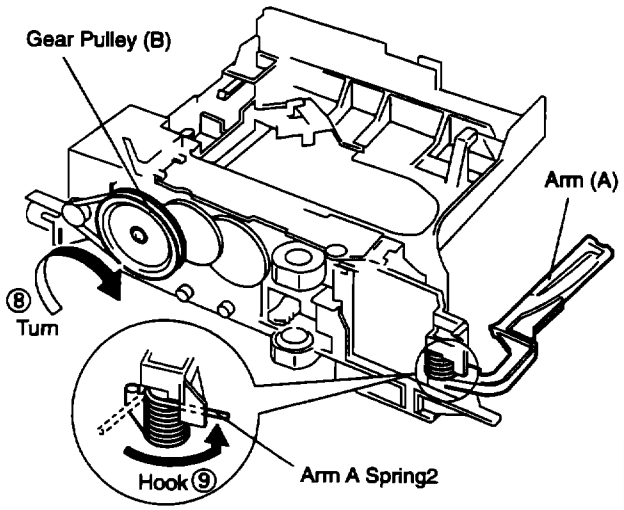

⑤-⑦



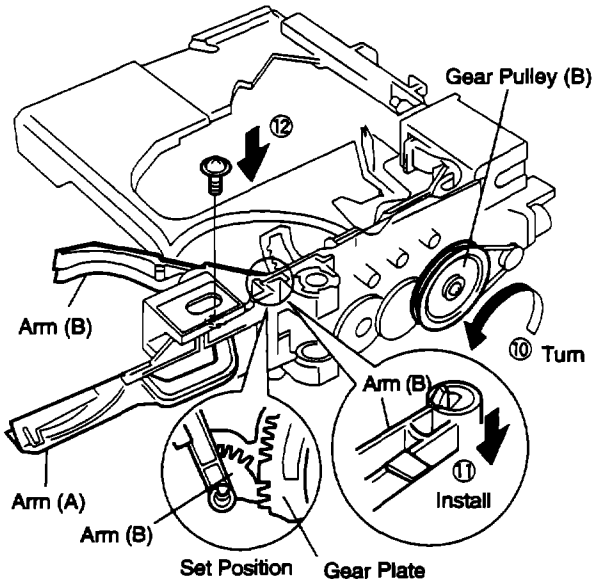

⑧ Turn gear pulley (B) and position Arm (A) as shown below.

⑨

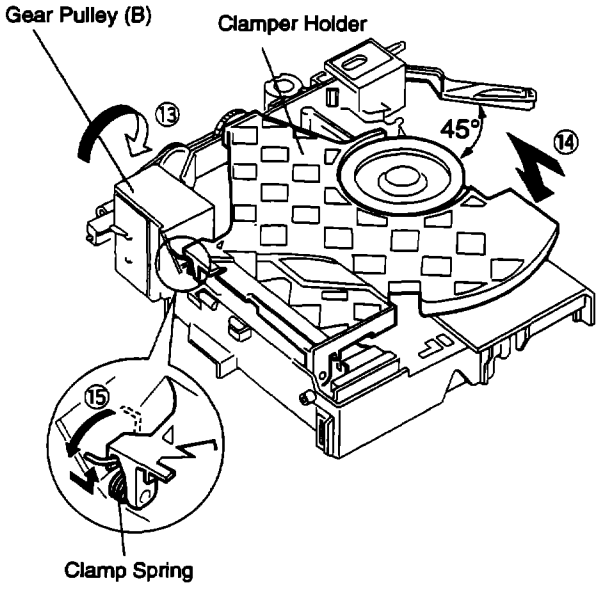
*Note : Do not hold the tip (blade) of arm (A) during operation.*



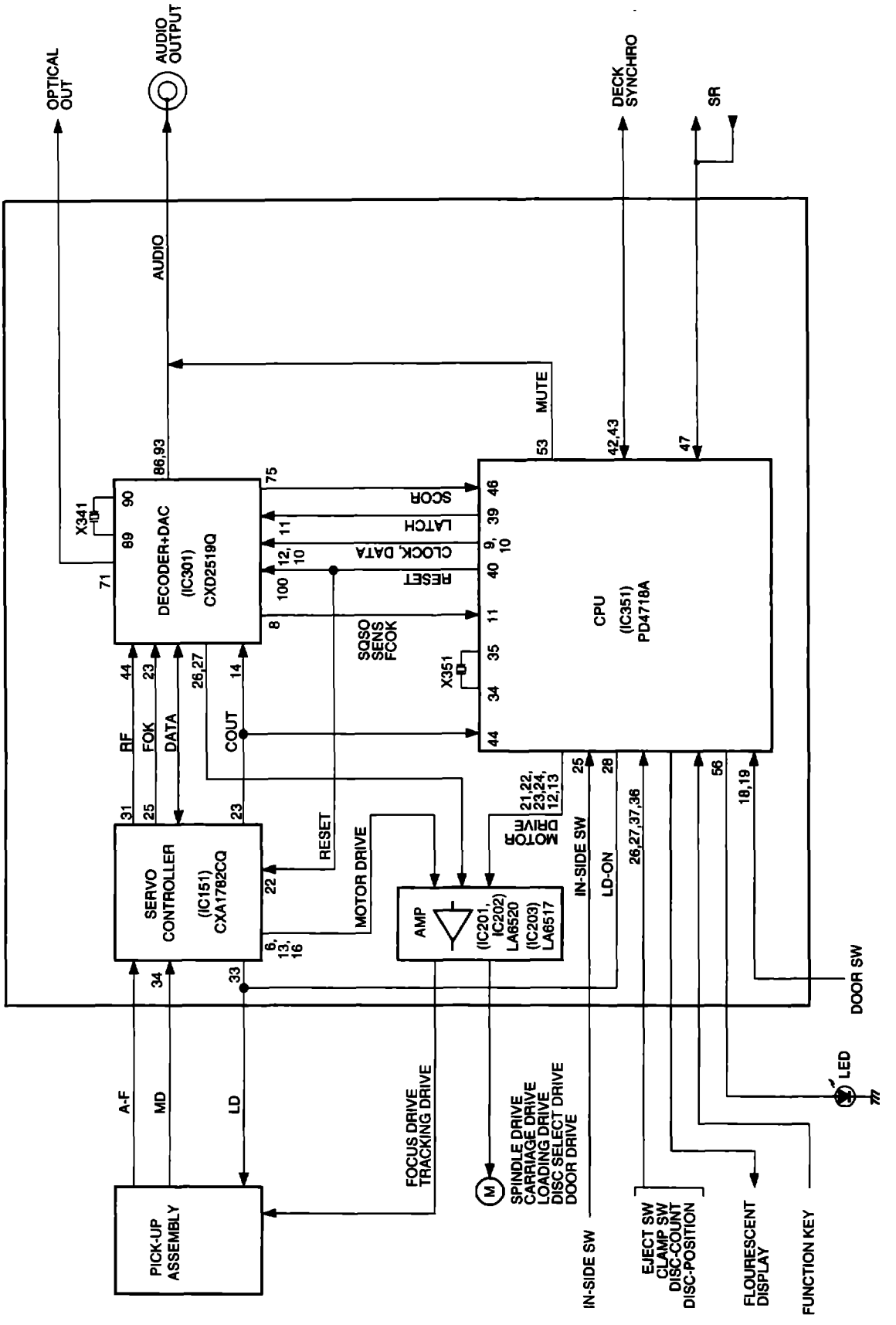
## ⑩-⑫


⑫
Gear Pulley (B)
Arm (B)
⑩ Turn
Arm (B)
⑪
Install
Arm (A)
Arm (B)
Set Position
Gear Plate

## ⑬-⑮

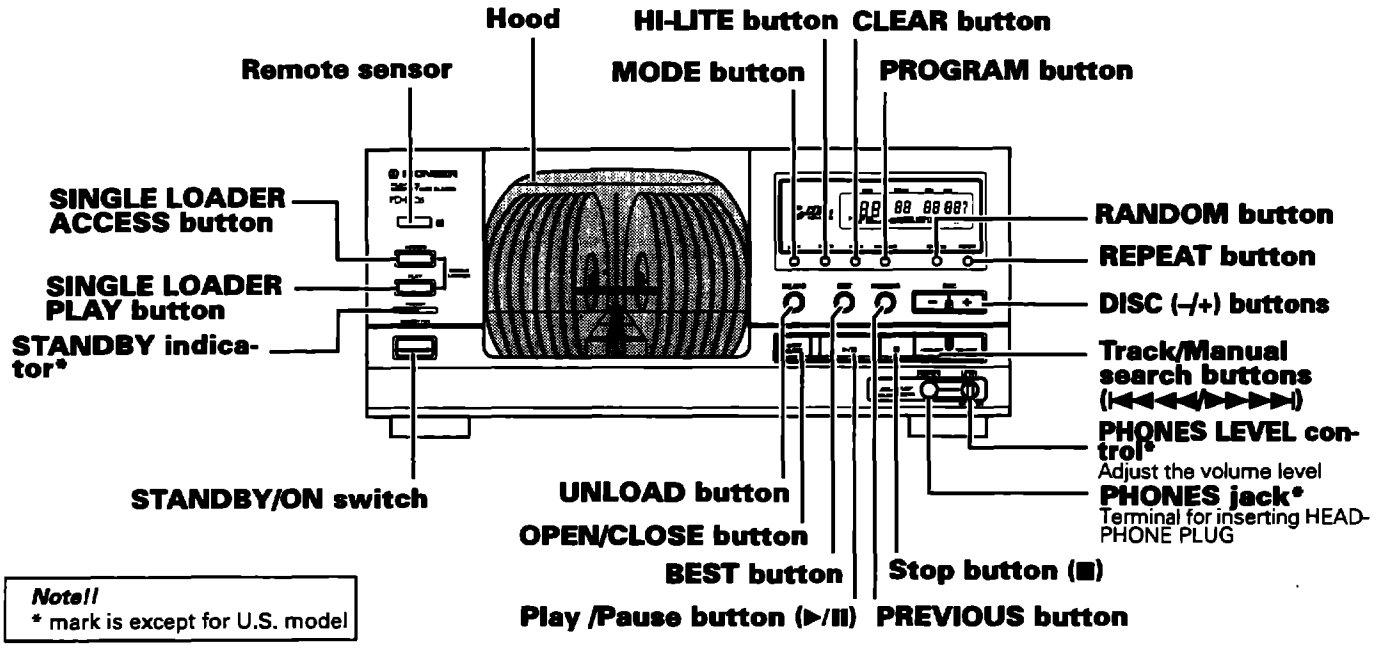

Gear Pulley (B)
Clamper Holder
⑬
45°
⑭
⑮
Clamp Spring

## 7.3 BLOCK DIAGRAM



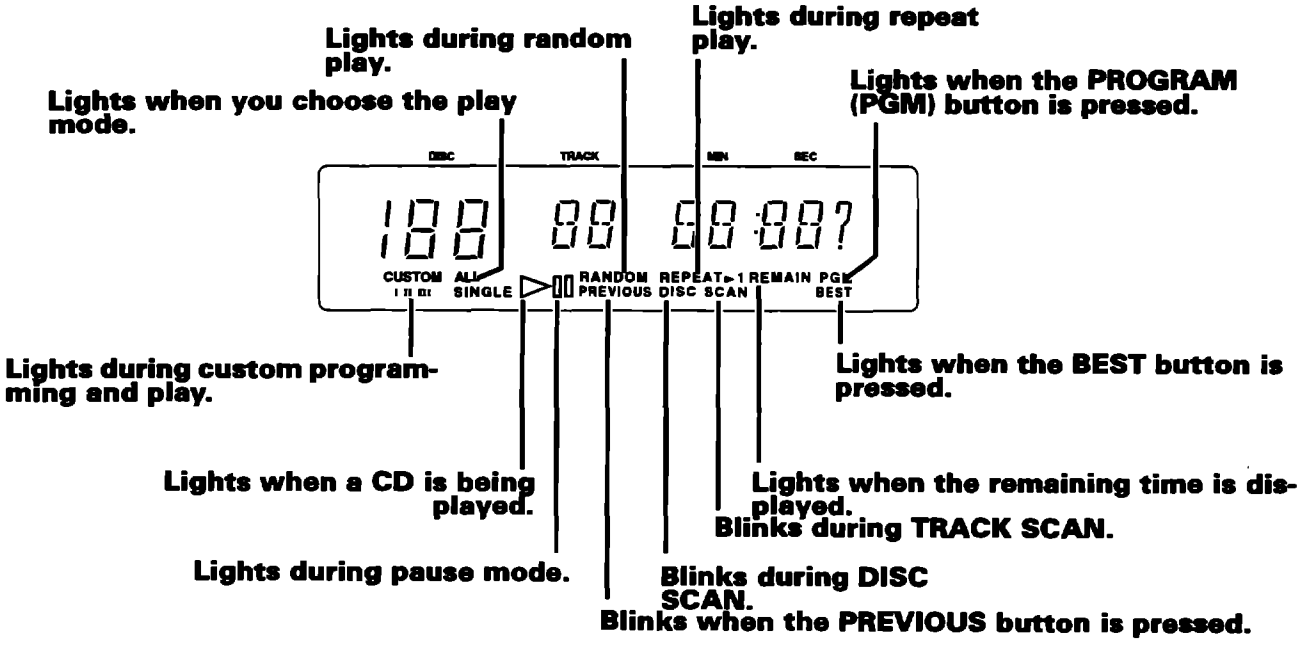
# 8. PANEL FACILITIES AND SPECIFICATIONS

## FRONT PANEL




*Note!!*
* mark is except for U.S. model

## DISPLAY



# SPECIFICATIONS

## 1. General

Type ..... Compact disc digital audio system
Power requirements
U.S. and Canadian models ..... AC 120V, 60 Hz
U.K. model ..... AC 220-240V, 50/60 Hz
European model ..... AC 220-240V, 50/60 Hz
Multi-voltage model ..... AC 110-127/220-240V (switchable) 50/60Hz
Power consumption
U.S. and Canadian models ..... 12W
U.K. model ..... 14W
European model ..... 14W
Multi-voltage model ..... 14W
Operating temperature ..... +5°C - +35°C (+41°F - +95°F)
Weight ( without package ) ..... 6.5 kg (14 lb 5 oz.)
External dimensions ..... 420(W) X 402(D) X 190(H) mm 16-9/16(W) X 15-13/16(D) X 7-1/2(H) in.

## 2. Audio section

Frequency response ..... 2 Hz - 20 kHz
S/N ratio ..... 98 dB or more (EIAJ)
Dynamic range ..... 96 dB or more (EIAJ)
Channel separation ..... 96 dB or more (EIAJ)
Harmonic distortion ..... 0.003 % or less (EIAJ)
Level difference between channels ..... 1.0 dB or less (EIAJ)
Output voltage ..... 2 ± 0.3 Vrms (EIAJ)
Wow and flutter ..... less than ±0.001 % (W.PEAK) ( below measurable level ) (EIAJ)
Channels ..... 2-channel ( stereo )

## 3. Output terminal

Audio line output
Control input jack (Except for U.K. model)
Control output jack (Except for European and U.K. models)
CD-DECK SYNCHRO jack
Optical digital output jack
I/O interface (European model only)
Head phone jack with volume control (Except for U.S. and Canadian models)

## 4. Accessories

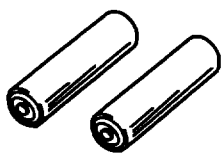
- Remote control unit ..... 1
- Size AA/R6P dry cell batteries ..... 2
- Output cable ..... 1
- Control cable ..... 1
- Operating instructions ..... 1

***Note!!***
***Specifications and design subject to possible modification without notice, due to improvements.***

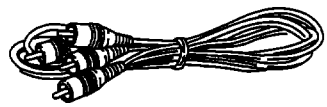
# CONFIRM SUPPLIED ACCESSORIES

Remote control unit x 1

Size AA/R6P dry cell batteries x 2



Output cable x 1



Control cable x 1